

City of Cambridge.

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THE

MAYOR'S ADDRESS

AT THE

Organization of the City Government,

AND THE

ANNUAL REPORTS

MADE TO

THE CITY COUNCIL.



BOSTON :

FRANKLIN PRESS: RAND, AVERY, & CO.

1879.

CITY OF CAMBRIDGE.

IN BOARD OF ALDERMEN, Nov. 20, 1878.

Ordered, That the Committee on Printing be authorized and instructed to obtain proposals, and to make a contract, for the printing of fifteen hundred copies of the Annual Report of the Committee on Finance to be made in December, 1878, with the accompanying documents, and such other documents as shall be ordered to be printed, together with the inaugural address of the next Mayor; the same to be printed under the supervision of the city clerk and under the direction of the Committee on Printing, for general distribution.

A true copy of the Order as adopted by the City Council, and approved by the Mayor, Dec. 5, 1878.

Attest:

JUSTIN A. JACOBS, *City Clerk*.

ADDRESS
OF
HON. SAMUEL L. MONTAGUE,
MAYOR.

GENTLEMEN OF THE CITY COUNCIL:

Another year of financial depression and business prostration has passed, bringing with it its attendant evils of increased losses, and greater hardships to those twin interests, capital and labor. At the commencement of the new year we find ourselves the selected trustees of a corporation which in four years of this continued depression has suffered a shrinkage of \$17,000,000 in its valuation, or over 25 per cent of its entire capital. One who has not had opportunities for close observation can hardly realize the hardships and trials which this enormous loss has entailed upon our citizens, — how many fortunes have vanished, how many happy homes in which the accumulations of years have been invested have been swept away, leaving their former possessors completely discouraged and almost hopeless. Many more are now straining every nerve to retain possession of their property, and carry it until the days of prosperity, long deferred but still hoped for, return. It is therefore our duty to use every exertion

which good judgment or wise forethought can suggest, so carefully and prudently to manage the affairs of the city, that all can see that their burdens are being relieved, and that the dawn of prosperity, which is now surely opening, shall bring back hope to the hopeless, and encouragement to those who have been discouraged. By this course, and this only, shall we meet the expectations of those who placed us here, and merit the honor which they have conferred upon us.

I have the honor to present for your consideration a comparative statement of the financial condition of our city for the years 1877 and 1878, as shown by the Auditor's books, and to offer such suggestions as seem to me to be of the most importance.

COMPARISON OF VALUATION.

The total valuation of the real and personal estates in our city, for the years 1877 and 1878, was as follows:—

1877	.	.	.	.	.	.	\$55,755,050
1878	.	.	.	.	.	.	49,615,140
Decrease in 1878	.	.	.	.	.	.	\$6,139,910

The total amount assessed upon these estates for the same years was:—

1877	.	.	.	.	.	.	\$962,231 65
1878	.	.	.	.	.	.	901,886 52
Decrease in 1878	.	.	.	.	.	.	\$60,345 13

The rate in 1878 was \$18 per thousand; in 1877, \$17.20. This shows that, although the rate was higher in 1878, yet the amount assessed, and actually paid by the tax-payers, was considerably less.

COMPARISON OF DEBT.

The total gross debt Nov. 30, 1877 and 1878, was

	1878.	1877.
Funded city debt . . .	\$3,269,000 00	\$3,276,500 00
Funded water debt . . .	1,528,700 00	1,516,300 00
Trust funds . . .	26,000 00	26,000 00
State and county taxes . .	59,886 52	82,731 65
City note	none	20,000 00
	\$4,883,586 52	\$4,921,531 65
Decrease of <i>gross</i> debt in 1878		\$37,945 13

The means on hand for paying this *gross* debt, as compared with the same date in 1877, were

	1878.	1877.
Amount of funds in charge of the Commissioners of Sinking-funds .	\$828,699 05	\$643,134 30
Amount of funds in charge of the Trustees of the sinking-fund Cam- bridge Water-works	291,955 46	234,129 61
Cash in the treasury (\$34,870.24), less bills audited but not paid (\$3,235.77)	31,634 47	879 16
	\$1,152,288 98	\$878,143 07
Increase of <i>means</i> during the year 1878		\$274,145 91

COMPARISON OF NET DEBT.

	1878.	1877.
The <i>gross</i> debt in 1878 and 1877 was	\$4,883,586 52	\$4,921,531 65
Means for paying same each year .	1,152,288 98	878,143 07
	\$3,731,297 54	\$4,043,388 58
Decrease in <i>net</i> debt during the year		\$312,091 04

The net debt would have shown a decrease of \$325,045.13, if those having charge of the sinking-funds had not charged off on their books \$12,954.09, the amount paid for premium on bonds, so as to reduce them to their par value. The money has been furnished and paid, and the bonds will sell to-day for that amount above what they appear on their books.

When we consider that this large decrease in our net debt the past year is not the result of an increase in the amount raised by taxation, but is largely owing to a watchful care in the appropriation, and a rigid economy in the expenditure, of the public funds, I think that you will all agree that the members of the City Council of 1878 are entitled to the credit of faithfully fulfilling the pledges made in their behalf at the commencement of the year, and that they, and the several departments of the city, are entitled to the thanks of our tax-payers for their united endeavors to accomplish this desired result.

By referring to my inaugural address of last year, where I gave the tables of our debt, the amount to be raised each year for interest and sinking-fund purposes with its effect upon our annual tax, and also showed the time when we could expect decided relief, you will see that it is as imperative for the City Council of 1879 to adopt the policy of "no increase of our city debt," as it was for the council of 1878. This policy should be pursued by each succeeding council until the sinking-funds can be utilized for the redemption of our maturing bonds. If I am any judge of public opinion, this will be required; and any deviation from this rule will meet a deserved rebuke.

WATER-WORKS.

The total expense chargeable to this department for the year ending Nov. 30, 1878, was \$176,176.40. The total receipts were \$175,437.94, leaving a balance of \$738.46 to be provided for by taxation. The receipts were \$2,600 in excess of the receipts for 1877, and about that amount above the estimate made at the commencement of the year. The construction account was small the past year, and will probably continue so for some years, unless investigation should show that some extraordinary expenditure is required to protect our water. The water works and supply are under constant and watchful supervision. Very few are aware of the time and patient study which the permanent members of the Water-Board have devoted to this department; and I think that we can safely assume that when any danger threatens our water works or supply, prompt and efficient measures will be taken to protect them.

WATER-SUPPLY.

Some time during last August, it was ascertained that a slaughter-house was to be erected on Concord Avenue, near the conduit which connects Fresh with Little and Spy Ponds. Immediate steps were taken to prevent its erection. A consultation with the proprietors developed the fact that they had not obtained written permission of the selectmen of Belmont, as required by law. On this ground, immediate application was made to the Supreme Court for an injunction to restrain them from building.

The selectmen were also notified that this city was opposed to the erection of the slaughter-house, and desired to be heard in opposition, should a petition be presented. Within a few days we received a notice that the petition had been presented to the Board, and that a hearing would be given to the parties in interest at the town hall in Belmont. Judge Hoar and the City Solicitor appeared for Cambridge; but notwithstanding that the evidence at the hearing showed that the place was not a proper location for a slaughter-house, and would no doubt create a nuisance in their own town, the selectmen, greatly to our surprise, gave their written permission; an act which, if we can judge any thing from the past histories of such establishments, they and the citizens of Belmont will soon regret. As soon as the building was erected, and slaughtering commenced, application was made to the State Board of Health, asking them to "cause Messrs. Niles Brothers to cease and desist from slaughtering or rendering at this place." A hearing has taken place on our petition, and we, no doubt, shall soon learn the decision. The authorities are in earnest about this matter; and all means at our command will be vigorously used until this building is removed. The discussion of this question, and our experience with the local Board of Health of Belmont, have clearly demonstrated to my mind the urgent necessity that exists, that certain portions of the water-shed of Fresh Pond should be within our city limits, and under the control of our own Board of Health, and within our police jurisdiction. The City Council of last year passed an order instructing the Mayor to petition the Legislature for the annexation of portions of the territory bordering upon the

Pond. I earnestly ask your co-operation, and that of our citizens, in aid of this petition.

The last City Council also appointed a committee, consisting of the Mayor, the Presidents of the Water-Board and Common Council, the City Solicitor, City Engineer, and City Physician, with power to employ experts for the purpose of thoroughly investigating the whole question of the present and future quantity and quality of our water, and the proper and best measures for its protection. As soon as this committee has completed its labors, it will submit its report for your approval.

SCHOOLS.

Our schools continue to maintain their high standard. They were probably never in a better condition. This fact attracts to our city people from other sections who are a valuable acquisition to our population, and who come to Cambridge to secure for their children the advantages of a good education. The reduction of over \$42,000 in the expense of this department from the cost of 1876, shows that our School Committee and Superintendent are fully alive to their duty to our tax-payers; and, if all has not been done in this direction that could be desired, it is owing to a fear of impairing the usefulness of our schools, rather than the want of a desire to reduce the expense.

The net expense of our schools for the year ending Nov. 30 was \$167,364.84; a decrease of \$20,353.29 from the expense of 1877, and \$42,253.21 from that of 1876. The number of pupils was 7,423, under the care of 173 teachers. The schoolhouses have been examined by members of the State detective force, to see that they meet

the requirements of the law in regard to public buildings ; and at their suggestion alterations have been made in the Washington Schoolhouse, at an expense of nearly three thousand dollars. Some slight changes were made in two of the other buildings : *all* are now reported to be in proper condition.

ALMSHOUSE AND OVERSEERS OF THE POOR.

From frequent visits and inspection of the almshouse, I take great pleasure in commending its management. Under the charge of its efficient and faithful warden and matron, it furnishes a pleasant and comfortable home for those who are so unfortunate as not to be able to provide a home for themselves. The house is neat and homelike, the inmates orderly and contented, and most of them are probably better housed, clothed, and fed, than they were before they became its inmates. There is a good school connected with the house, in charge of a competent teacher, who is under the direction of the School Committee.

The financial exhibit of the Overseers of the Poor shows the faithful and business-like manner in which this department has been conducted. The total net expenditure under the several appropriations in their charge for the year 1878 was \$30,881.59 ; showing an actual reduction, as compared with the same time in 1877, of \$26,343.10, and, as compared with 1876, of \$45,323.49, — a saving nearly equal to one dollar per thousand on our present valuation.

A comparison of the expenditure of 1876 with that of 1878 more clearly demonstrates the importance of the change that has been made in this department, as the new

system was in operation for only a part of the year 1877. This saving has not been any loss to the worthy poor; they are as well provided for as formerly: but impostors have been weeded out, and the State and other cities and towns required to pay for the care of those whom they were legally bound to support.

The tendency under the old system was to an annual increase in the expenditure, with a consequent increase in the number of paupers, and a development of the communistic idea that the State is bound to support all its citizens who have not the disposition to provide for themselves. The tendency under the new system is to reduce the annual cost, and prevent the increase of pauperism by checking the indiscriminate assistance which in many cases makes the transition easy from a self-reliant citizen, who, although poor, is required to bear his fair proportion of the public burden, to one who is willing to be a burden upon others so long as he can find those who will provide for his wants.

FIRE-DEPARTMENT.

The total expense of this department the past year was \$59,939.73, a reduction from that in 1877 of \$8,572.93. The Chief Engineer has heartily co-operated with the City Council in this reduction of the cost.

The Chief reports the department as fully up to its usual good condition and efficiency, and alludes to the immunity of our city from serious loss by fire during the year. The whole number of fires and alarms has been 72. The losses by these fires amount in the aggregate to \$106,225.30; the insurance was \$101,478.80; leaving a

net loss to the property-owners of \$4,746.50. The reduction in the salaries of the officers and men commenced Jan. 1, 1879: consequently there will not be required so large an appropriation this year as last. The Chief Engineer, in his report, makes some recommendations which he desires to see adopted: these should receive your careful attention, but should be governed by our rule of strict economy.

BOARD OF HEALTH.

In accordance with the provisions contained in an Act of the Legislature approved April 17, 1877, entitled "An Act relating to Boards of Health in the several Cities of the Commonwealth," the citizens of Cambridge, at the general election the November following, decided to accept the provisions of said act; and it became my duty, at the commencement of the last municipal year, to nominate the gentlemen who were to compose the new Board. The nominations were cordially approved by the Board of Aldermen.

On their acceptance of the office, any fears that might have previously existed, that there was danger that an independent Board might make such radical changes, and prove so expensive, as to create public opposition, and impair its usefulness, were dispelled by the well-known character of the gentlemen appointed. The new Board has performed its duties quietly, efficiently, and economically; and I have no doubt that the sanitary condition and health of our city will show great improvement under its direction.

SEWERS.

The total expenditure on account of sewers the past year has been as follows : —

Sewers (construction)	.	.	.	.	\$5,742 22
Sewers (maintenance)	.	.	.	.	3,795 98
Total	.	.	.	.	<u>\$9,538 20</u>

There have been ten new sewers constructed, at a cost of \$2,064.27. There will not probably be a large appropriation required for sewers the coming year ; but there is no doubt that, in the near future, large appropriations will be required to take the sewage which is now discharged into Charles River, and carry it to deep water, and to provide for the sewage which finds its way into Alewife Brook. I have always believed that it was a mistake to drain the westerly portion of our city into this brook. It was the result of the old plan of building sewers where water would run most easily, without any reference to a wise and comprehensive plan of sewerage for our whole city, which should have been prepared before any large sewers were built, the want of which has been the source of great annoyance and loss to the city. It has been suggested that I should recommend the presenting of a petition to the Legislature for the appointment of a commission to consider the whole question of draining this territory ; but, as this matter will receive the attention of the committee on our water-supply, I feel that any recommendation or action, before this committee has reported, would be premature.

The sewers are under the charge of the City Engineer.

A reference to his report will give you some idea of his duties, and of their importance to the interests of the city. A comparison of the reports of previous years will also show the faithful and economical manner in which he has conducted the business of his office.

POLICE.

The organization and number of the force remain the same as last year. Early in the year, with a view to render the force more efficient, and to enforce better discipline, a new code of rules and regulations was adopted by the Board of Aldermen. These rules provide that no new officer can be appointed who is under twenty-five years of age, or over forty, and no patrolman can serve on the force after he reaches the age of sixty. This, no doubt, will entail some hardship upon those who by this rule are dropped from the force; and I should be pleased to see some way devised whereby those officers who have served the city faithfully for a long term of years could be provided for in their old age. But this rule seemed to be imperative. We have so large a territory to cover, with so small a force, that the officers are necessarily widely separated, and in case of trouble must rely upon their own strength and endurance properly to enforce the laws, and should therefore be physically able to furnish that protection which the public requires. The officers have been required to meet at stated times, and receive instruction in military drill. This has tended to improve the discipline, and will render them more efficient in case of any public disturbance. Other changes have been made,

all with good results. The officers are more tidy in appearance, more attentive to their duties, and will compare favorably with any force in the State.

The total expenditure for this department the past year was \$65,395.66, — a reduction as compared with 1877 of \$1,455.19. This has been in minor expenses, the number of men and the pay being the same both years. This year will show a larger saving, owing to the reduction in salaries. The chief recommends the purchase of a new one-horse vehicle for the transportation of prisoners, and the employment of two mounted patrolmen ; all of which should receive careful attention.

LAMPS.

The cost of lighting our streets the past year has been \$19,263.60 ; in 1877 it was \$21,102.75 ; in 1876, \$22,366.-05. The fact that there are ten per cent more lamps to be cared for and lighted than there were at the commencement of the year 1876, and that, notwithstanding this steady increase in the number of lamps, there has been a steady decrease in the expense, shows that this department is carefully managed. The superintendent renews his recommendation that the lamps in all our streets be kept burning during the entire night. I have no doubt that this proposed change would be desirable in ordinary times ; but the old plan has met our requirements so far, and I can see no good reason why we should at present incur this additional expense.

STREETS.

The expense for construction, repairs, and paving, the past year, was \$69,994.46, a reduction of \$15,056.72 from the amount expended in 1877. It is generally conceded that our streets are in as good condition to-day as they ever were, and this speaks well for the management of this department. No new streets have been laid out or accepted during the year. A new bulkhead has been constructed through the mill-pond on River Street, and a sea-wall built from the mill to the river, widening the street at this point from seven to ten feet. I see no reason why the appropriation for streets should exceed that of last year.

BRIDGES.

The bridges under the charge of the Street Department have required quite extensive repairs the past year. The Cambridge Great Bridge has been rebuilt, the River-street Bridge has been thoroughly repaired, and Brookline Bridge has been replanked. The total cost of the repairs and care of these bridges has been \$6,697.55. The Superintendent of Streets' estimate of the amount required the coming year is \$3,500.

The Commissioners of West-Boston, Canal, and Prison-Point Bridges report that our share of the expense of the care and maintenance of their bridges for the past year was \$5,784.49: they report the bridges in good order, and that no extensive repairs will be required the present year.

ASSESSORS' DEPARTMENT.

My observation has convinced me that the business of the Assessors' Department has not been conducted with that strict care and attention to details that the interests of the citizens and the business of the office demand. We have apparently had no *Board* of Assessors, but each individual assessor has conducted the business of his assessorial district in accordance with his own views; and, instead of a system for the whole city, we have had a different system in each district. As they are independent of the City Council, which would be most likely to know of any neglect of duty should it occur, it should have some power to make improvements. The business of the office should be thoroughly re-organized; and the assessors should act as a *Board*, and all questions of abatements and disputes in regard to assessments should be acted upon by the whole Board. There should also be some improvement in keeping the records, so that any information in regard to the office can be obtained from the books at any time. The office-hours should also conform as much as possible to the hours of the Treasurer. This might possibly necessitate the employment of a clerk, or some clerical assistance in the office; but, as this office is the basis on which rest the whole financial interests of our city, a reasonable expenditure to make it more efficient would be true economy. An office of so much importance should be removed as much as possible from politics. These are some of many reasons why I recommend a change in our Charter, so that the Assessors shall be elected by the City Council.

SURRENDERED ESTATES.

By the Auditor's books it appears that the total cost, exclusive of the cost of filling, of the estates now in possession of the city, is \$171,618.12. There are four estates of an appraised value of \$26,781 yet to be paid for: these are in process of adjustment by the courts. Decisions will probably be rendered during the year, and provision will have to be made for the payment.

GENERAL REMARKS.

The new system of accounts adopted by the city has had a year's trial. The books for the financial year have been closed and balanced, and a fair opportunity exists to judge of its merits. After carefully watching its workings, I feel no hesitation in declaring it to be completely successful. The Auditor is now the bookkeeper of the entire city. All moneys paid into the city treasury must be reported to him; and the vouchers for all money paid out must be deposited in his office, and accounted for.

Each month there is an actual and complete audit of the Treasurer's accounts prepared and furnished to the City Council: this, with the facilities furnished by the Collector, has enabled the Committee on Finance, in a few hours' time, thoroughly to audit the accounts of the Treasurer and Collector without the aid of an expert accountant.

The Treasurer and Auditor have done all in their power to perfect the new system, and make it a success; and it affords me great pleasure to commend the faithful

and intelligent manner in which they have performed their duties.

There is no better criterion of the faithfulness of a City Council than the regularity with which the members of committees attend to their duties, and the care with which committees manage their appropriations. I cannot let this opportunity pass without officially thanking the members of the City Council of 1878, the independent boards, and heads of departments, for the willingness which they have shown to join in every measure tending to meet the present public desire for true economy. In no instance has the expenditure of any committee or department exceeded the amount appropriated at the commencement of the year, except in a few cases where expenditures were required which were not and could not have been foreseen when the appropriation was made.

Under the provisions of chap. 282 of the Acts of 1878, entitled "An Act to provide Additional Pay for Poor and Indigent Soldiers and Sailors," the city is now paying to 275 persons about \$2,500 per month, and the amount is steadily increasing. If this law remains in force through the year, we shall have to raise by taxation \$30,000, in addition to the amount of the regular State aid, which is about \$20,000, making in all about \$50,000. A greater part will be repaid by the State next year, but our proportion will be immediately re-assessed to us in the State tax. The committee on "Soldiers and their Families" has made a report showing the defects in the law, and recommending its repeal or amendment, in which I heartily join; and I would recommend that action be taken by the City Council, to bring this matter to the

attention of our representatives in the General Court. Efforts have been made the past year to have the City Council take some measures towards obtaining from the Legislature a modification of chap. 209 of the Acts of 1875, so that the amount now required to be paid into the sinking-funds, for the redemption of our bonds, can be reduced. Without going into the question whether this would not be on the same principle which *created* the debt, — viz., seeking present relief at the expense of the future, — I will simply say, that in my judgment it would be an absurdity for the City of Cambridge to ask the Legislature to relieve it from an obligation which is required of every other city and town in the Commonwealth.

Our citizens are to be congratulated upon the action of the Union Railway Company in making a reduction in fares. This action will tend greatly to promote the growth and material prosperity of our city, and will enure equally to the advantage of our citizens and the company.

Arrangements have been made by which the annual city documents will be placed in your hands early in the year. A careful perusal of the reports which they contain will furnish you much valuable information to guide you in the discharge of your duties.

In conclusion, gentlemen, in our positions as guardians of the interests of the city as a whole, we are often called upon to act as judges between the interests of the corporation and those of its individual members; and, while we should be ever watchful to protect the rights of the city, we should be equally careful that there is no encroachment upon the rights of any citizen, however humble. Exact justice should govern all our deliberations.

REPORT

OF THE

COMMITTEE ON FINANCE.

THE Committee on Finance for the municipal year ending Dec. 31, 1878, herewith submits its final

REPORT.

It is provided by the Ordinance in relation to Accounts and Finance, approved Dec. 4, 1878, that the duty of preparing the annual financial statement to the City Council, hitherto devolving upon this committee, shall be performed by the Auditor of Accounts. His report, embodying such statement, may be found in another part of the present city document.

The transfer of the work formerly made incumbent by ordinance upon the Committee on Finance, to the Auditor of Accounts, was one of the results of a change in the manner of keeping the accounts of the city, which was inaugurated by the City Government of the preceding year. As a matter of public interest the details of the new system may be stated as follows:—

1. The Auditor of Accounts is required to keep such books as will enable him to give information at any time concerning the financial condition of the city in any of its departments. Each department must render to him a statement of such of its transactions as in any way affect the treasury, so that in his office will be brought together the accounts kept in the several departments.

2. The Auditor keeps his accounts with the city treasury in such a manner as to show the authorized payments that are

made, and also the receipts from each and every source; and the exact amount of cash that should be in the hands of the City Treasurer can thus be ascertained without resorting to the books kept by the latter in his office. A constant check is thus maintained, by which any errors or irregularities that may occur therein may easily be discovered, and any examination of the Treasurer's accounts by an expert rendered unnecessary.

3. All receipted bills are filed in the Auditor's office, in conformity with the entries in his books, so that he is enabled to refer readily to any bill that may be required for examination.

4. The Auditor's books also exhibit the precise character of the city debt of every description, and show the amount receivable from all sources, so that the liabilities of the city, over and above what are called cash assets, may be easily and accurately determined whenever such information is desired.

5. The Auditor's annual report includes all expenditures, exhibiting the exact condition of the claims presented and allowed during the financial year; and brings the city accounts up to the date of the close of such year, by this means avoiding any overlapping of one year upon another.

6. The accounts of the Treasurer and Collector of Taxes, being in exact conformity with those of the Auditor, the chances for error are thus reduced to a minimum. The checks and proofs maintained by this duplicate system are so many and various that perfect accuracy is easily secured.

It will be seen that under the operation of the foregoing, the labors of the Committee on Finance, so far as they have related to the annual financial exhibit, are now largely assumed by the Auditor of Accounts. By the provisions of the existing ordinance relating to accounts and finance, it is made the duty of your committee to examine and audit the accounts of the City Treasurer, and make report thereof to the City Council. In compliance with this requirement of ordinance, the committee met on the 30th of November, in the office of the City Treasurer, and made careful examination of the cash in his hands at the close of business on that day. The amount was found to agree with the balance as shown upon his cash-book; namely, \$34,870.24.

A sub-committee, consisting of Alderman Martin L. Smith and Councilmen Nathan G. Gooch and Rufus Lamson, was also

appointed to examine and audit the Treasurer's books. The report of this sub-committee is hereto appended.

Although a change was made in the office of treasurer and collector at the beginning of the year, Mr. Joseph Whitney, the former Collector of Taxes, was obliged, under the requirements of the statutes of the Commonwealth, to continue in the work of collecting such taxes and assessments of former years, as had been committed to him by warrants of the assessors and of the Board of Aldermen. He has nearly completed this labor, and will undoubtedly soon ask to be relieved from his official responsibility.

At the close of the last financial year, there were unpaid taxes as follows:—

1877	.	.	.	.	.	.	.	\$153,891 81
1876	.	.	.	.	.	.	.	75,433 15
1875	.	.	.	.	.	.	.	13,520 63
								\$242,845 59

Of this sum there have been collected in 1878 . . . 187,992 45

Balance uncollected \$54,853 14

A large portion of this sum is represented by tax-deeds in possession of the present City Treasurer, the same being of estates conveyed to the city by the late Collector of Taxes: the remainder consists of poll and personal estate taxes.

The following comparative tables are compiled from the assessors' books for the years 1877 and 1878.

Polls and Valuation of Estates in 1878.

Ward.	Polls.	Personal.	Real Estate.	Total.	Dwellings.
1	1,826	\$4,581,700	\$9,858,900	\$14,440,600	1,489
2	3,268	3,592,020	9,929,300	13,521,320	2,261
3	2,452	1,562,920	5,887,400	7,450,320	1,363
4	2,808	1,521,600	7,259,500	8,781,100	1,997
5	1,202	809,200	4,612,600	5,421,800	927
Total,	11,556	\$12,067,440	\$37,547,700	\$49,615,140	8,037

Polls and Valuation of Estates in 1877.

Ward.	Polls.	Personal.	Real Estate.	Total.	Dwellings.
1	1,896	\$4,558,600	\$11,545,900	\$16,104,500	1,463
2	3,219	4,050,350	11,288,200	15,338,550	2,245
3	2,468	1,672,300	6,589,800	8,262,100	1,363
4	2,815	1,652,300	7,920,400	9,572,700	1,967
5	1,195	944,500	5,532,700	6,477,200	915
Total,	11,593	\$12,878,050	\$42,877,000	\$55,755,050	7,953

It is shown by the foregoing, that the total valuation of real and personal estate in this city was,

In 1877	.	.	.	.	.	.	.	\$55,755,050
In 1878	.	.	.	.	.	.	.	49,615,140
Decrease in 1878	.	.	.	.	.	.	.	<u>\$6,139,960</u>

The total amount assessed upon these valuations and upon poll taxes was,

In 1877	.	.	.	.	.	.	.	\$962,231 65
In 1878	.	.	.	.	.	.	.	901,886 52
Actual decrease of taxation in 1878	.	.	.	.	.	.	.	<u>\$60,345 13</u>

The rate of taxation in 1878 was \$18 per \$1,000. Although this was higher than in the year 1877, yet, owing to the reduction in the valuation of real estate in the present year, the amount assessed upon and actually paid by our citizens was considerably less than in the year previous. With the established discount of four per cent upon all taxes paid on or before Oct. 10, the net rate on such taxes was \$17.28 per \$1,000. Had there been no decrease in the valuation, the rate of taxation in 1878 would have been about \$16 per \$1,000, which the discount of four per cent would have further reduced to \$15.36 per \$1,000.

In concluding its report, your Committee would especially commend the present system of keeping the accounts of the city, as hereinbefore described, — its practical working being shown

in the accompanying report of the sub-committee. Its successful introduction is largely due to the earnest co-operation of the Treasurer, and Auditor of Accounts; and the committee desires to express its hearty appreciation of the ability and faithful services of these officers, in their respective departments.

Respectfully submitted,

SAM'L L. MONTAGUE,
GEORGE F. WHITING,
M. L. SMITH,
GEO. S. SAUNDERS,
WILLIAM E. DOYLE,
NATHAN G. GOOCH,
RUFUS LAMSON,
E. T. NICHOLS,

} Committee
on
Finance.

CONCERNING

REPORT:

<i>Amount brought forward</i>	\$923,787 57
We deduct from this amount the total of the unpaid bills, which by examination, item by item, we find to be	127,744 47
This remainder of	\$796,043 10
agrees exactly with the amount the Treasurer acknowledges to have collected by his books, and which appears in his report.	

Fifth, The item of abatements and discounts we have also examined by taking the amount of gross collections to Oct. 10, 1878, and deducting from this amount the abatements reported and entered to that date, and reckoning four per cent discount upon the remainder, which leaves a result within 35 cents of the amount of discounts made upon all the bills as per item of abatements and discounts on the Treasurer's and Auditor's books. It is easily seen that this discrepancy of 35 cents is accounted for by the actual discounts being made on the separate bills, whereas we reckoned in the aggregate; the difference is caused by the necessarily omitted fractions of a cent.

In this way we have verified the DISCOUNTS made by the Treasurer on taxes paid on or before Oct. 10.

The ABATEMENTS we verified by the Auditor's books; all the abatement certificates having been passed to the Auditor, examined by him, and his check issued therefor.

M. L. SMITH,	} <i>Sub-</i>
NATHAN G. GOOCH,	
RUFUS LAMSON,	
	<i>Committee.</i>

ANNUAL REPORT

OF THE

AUDITOR OF ACCOUNTS.

TO THE HONORABLE CITY COUNCIL:—

GENTLEMEN,— The undersigned, in presenting his first annual report of the financial condition of the city, embracing the period from Dec. 1, 1877, to Nov. 30, 1878, as required by sect. 4 of an “Ordinance in Relation to Accounts and Finance,” desires to commend the system of accounts adopted at the beginning of the year, and to congratulate the City Council and others interested upon its introduction and successful operation.

There is certainly reason for encouragement when, upon summing up the result of the year's business, we find our large debt materially reduced, and no new debt incurred that in any way affects taxation; the only increase of the debt being the sum of \$12,500 for the construction account of the Water-Works, a registered bond for that amount having been negotiated, payable to the trustees of the sinking-fund of the Cambridge Water-Works, in twenty years, with interest at the rate of five per cent per annum.

The aggregate amount of revenue received from all sources during the year is \$1,780,332.42; and the aggregate amount expended is \$1,749,469.51, showing a balance of \$30,862.91 revenue over expenses.

The sum of \$445,000 constitutes the entire temporary loan for the year; or, in other words, is the amount borrowed from time to time during the year, in anticipation of revenue, to defray the ordinary running expenses of the city. The dates and amounts of notes given, and rate of interest paid on these temporary loans, are as follows:—

Jan. 1, 1878	.	.	.	\$50,000	Interest $4\frac{1}{8}$ per cent.
"	"	.	.	50,000	" $4\frac{1}{8}$ "
"	"	.	.	25,000	" $4\frac{1}{8}$ "
"	"	.	.	25,000	" $4\frac{1}{8}$ "
"	"	.	.	25,000	" $4\frac{1}{8}$ "
"	"	.	.	25,000	" $4\frac{1}{8}$ "
"	"	.	.	10,000	" $4\frac{1}{8}$ "
"	"	.	.	10,000	" $4\frac{1}{8}$ "
"	"	.	.	10,000	" $4\frac{1}{8}$ "
Feb. 11, 1878	.	.	.	12,500	" $3\frac{9}{10}$ "
"	"	.	.	12,500	" $3\frac{9}{10}$ "
March 11, 1878	.	.	.	20,000	" $3\frac{9}{10}$ "
April 10, 1878	.	.	.	10,000	" $3\frac{3}{4}$ "
"	"	.	.	10,000	" $3\frac{3}{4}$ "
"	"	.	.	10,000	" $3\frac{3}{4}$ "
"	"	.	.	30,000	" $3\frac{3}{4}$ "
" 30, "	.	.	.	5,000	" $3\frac{3}{4}$ "
"	"	.	.	5,000	" $3\frac{3}{4}$ "
"	"	.	.	5,000	" $3\frac{3}{4}$ "
"	"	.	.	5,000	" $3\frac{3}{4}$ "
July 2, 1878	.	.	.	37,500	" 3 "
"	"	.	.	37,500	" 3 "
"	"	.	.	15,000	" 3 "

These notes were all due and paid Oct. 10, 1878.

THE CITY DEBT.¹

The *gross* city and water debt, Nov. 30, 1878, as compared with the same debt Nov. 30, 1877, is as follows :—

	1878.	1877.
Funded loan . . .	\$3,269,000 00	\$3,276,500 00
Funded water loan . .	1,528,700 00	1,516,300 00
Trust funds . . .	26,000 00	26,000 00
State and county taxes .	59,886 52	82,731 65
<i>Amounts carried forward,</i>	<u>\$4,883,586 52</u>	<u>\$4,901,531 65</u>

¹ By a comparison of the figures herein shown as the net debt in 1877, with the figures appearing in the Finance Committee's report of that year, a difference will be observed; which is accounted for by the fact that the Committee included in its statement the accrued interest and premiums, and interest on investments in the sinking-funds, whereas this report shows only the par value and actual amount of interest received.

<i>Amounts brought forward</i> , \$4,883,586 52	\$4,901,531 65
City note	20,000 00
\$4,883,586 52	\$4,921,531 65

Decrease of *gross* debt Nov. 30, 1878, \$37,945.13.

The *net* city and water debt, Nov. 30, 1878, as compared with the same debt Nov. 30, 1877, is as follows : —

	1878.	1877.
Gross debt as above	\$4,883,586 52	\$4,921,531 65
Less amount of both sinking-funds and cash in treasury	1,152,288 98	878,143 07
	\$3,731,297 54	\$4,043,388 58

Decrease of *net* debt, Nov. 30, 1878, \$312,091.04.

The *net* city debt, not including the water debt, as shown Nov. 30, 1878, and Nov. 30, 1877, is as follows : —

	1878.	1877.
Gross city debt	\$3,354,886 52	\$3,405,231 65
Less amount of sinking-funds and cash in treasury	860,333 52	644,013 46
	\$2,494,553 00	\$2,761,218 19
Decrease of <i>net</i> city debt, Nov. 30, 1878		\$266,665 19

The *net* water debt as shown Nov. 30, 1878, and Nov. 30, 1877, is as follows : —

	1878.	1877.
Gross water debt	\$1,528,700 00	\$1,516,300 00
Less amount of water sinking-fund	291,955 46	234,129 61
	\$1,236,744 54	\$1,282,170 39

Decrease of *net* water debt, Nov. 30, 1878 \$45,425 85

By the above statements it will be seen that the *net* city and water debt has been reduced during the year from \$4,043,388.58, as it stood Nov. 30, 1877, to \$3,731,297.54, as it stands Nov. 30, 1878; showing a reduction of \$312,091.04.

The fact that our debt is being gradually reduced by the operation of the sinking-funds is a matter not fully realized by many. The annual appropriation by the City Council of an amount equal to a certain percentage of the debt, as required by law and ordinances, together with the interest accumulations, establishes a fund from which the outstanding bonds of the city are paid as they mature, the commissioners of said funds furnishing the City Treasurer with sufficient cash to pay bonds as they are presented by holders at the time of maturity; so that payments to the sinking-funds, together with the interest accumulations thereon, virtually decrease the *net* debt in proportion to the amount so appropriated and earned each year.

THE FUNDED DEBT.

Following is a statement of the total funded debt of the city, with the dates of maturity and rate of interest thereon:—

Bridge Loan.

Due July 1, 1884, interest 6 per cent .	\$94,000	
July 1, 1885, “ 6 “ .	26,000	
		\$120,000

Building Loan.

Due July 1, 1883, interest 6 per cent	\$119,000	
April 1, 1884, “ 6 “ .	198,000	
July 1, 1885, “ 6 “ .	17,000	
		334,000

City Loan.

Due July 1, 1879, interest 5 per cent	\$15,000	
July 1, 1881, “ 6 “ .	100,000	
Aug. 1, 1882, “ 5 “ .	30,000	
Sept. 10, 1882, “ 5 “ .	40,000	
Nov. 20, 1882, “ 5 “ .	14,000	
July 1, 1886, “ 6 “ .	100,000	
April 1, 1889, “ 5 “ .	100,000	
July 1, 1890, “ 6 “ .	20,000	
Jan. 1, 1893, “ 5 “ (gold)	150,000	
		569,000

<i>Amount carried forward</i>	.	.	.	.		\$1,023,000
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Amount brought forward \$1,023,000

Funding Loan.

Due April 1, 1883, interest 6 per cent	\$216,000	
July 1, 1884, " 6 "	100,000	
July 1, 1885, " 6 "	24,000	
		340,000

Land Loan.

Due July 1, 1893, interest 6 per cent.	\$10,000	
		10,000

Low-Land Loan.

Due July 1, 1882, interest 6 per cent	\$15,000	
July 1, 1883, " 6 "	270,000	
April 1, 1884, " 6 "	240,000	
Oct. 1, 1884, " 6 "	56,000	
July 1, 1885, " 6 "	122,000	
July 1, 1886, " 6 "	60,000	
Oct. 1, 1887, " 5 "	120,000	
		883,000

Paving Loan.

Due July 1, 1893, interest 6 per cent	\$100,000	
July 1, 1894, " 6 "	130,000	
July 1, 1895, " 6 "	25,000	
		255,000

Sewer Loan.

Due Oct. 1, 1895, interest 6 per cent	\$20,000	
July 1, 1896, " 6 "	29,000	
July 1, 1903, " 6 "	136,000	
July 1, 1904, " 6 "	295,000	
July 1, 1905, " 6 "	144,000	
		624,000

Street Loan.

Due July 1, 1893, interest 6 per cent.	\$13,000	
		13,000

Street-widening Loan.

Due July 1, 1886, interest 6 per cent.	\$7,000	
July 1, 1903, " 6 "	10,000	
July 1, 1904, " 6 "	90,000	
July 1, 1905, " 6 "	14,000	
		121,000

<i>Amount carried forward</i>	\$3,269,000
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Amount brought forward \$3,269,000

Water Loan.

Due May 1, 1875, interest 6 per cent	\$200
July 1, 1881, " 6 " .	50,000
Aug. 1, 1883, " 6 " .	55,000
July 2, 1886, " 6 " .	100,000
April 1, 1887, " 6 " .	150,000
April 1, 1888, " 6 " .	175,000
May 1, 1889, " 6 " .	112,000
July 1, 1890, " 6 " .	60,000
May 1, 1891, " 6 " .	50,000
July 1, 1892, " 6 " .	335,000
April 1, 1894, " 6 " .	150,000
April 1, 1895, " 6 " .	160,000
July 1, 1896, " 6 " .	103,000
July 1, 1897, " 6 " .	16,000
July 1, 1898, " 5 " .	12,500
	1,528,700
Total funded debt	\$4,797,700

Following is a statement of the total funded debt, showing the amount of bonds due and payable each year until all mature:—

1875	\$200
1879	15,000
1881	150,000
1882	99,000
1883	660,000
1884	688,000
1885	189,000
1886	267,000
1887	270,000
1888	175,000
1889	212,000
1890	80,000
1891	50,000
<i>Amount carried forward</i>	\$2,855,200

<i>Amount brought forward</i>	.	.	.	.	.	.	\$2,855,200
1892	.	.	.	.	.	.	335,000
1893	.	.	.	.	.	.	273,000
1894	.	.	.	.	.	.	280,000
1895	.	.	.	.	.	.	205,000
1896	.	.	.	.	.	.	132,000
1897	.	.	.	.	.	.	12,500
1898	.	.	.	.	.	.	16,000
1903	.	.	.	.	.	.	146,000
1904	.	.	.	.	.	.	385,000
1905	.	.	.	.	.	.	158,000
							\$4,797,700

LIABILITIES AND ASSETS.

The liabilities and assets of the city Nov. 30, 1878, are classified as follows:—

Liabilities.

Funded loan	.	.	.	.	.	.	\$3,269,000 00
“ water loan	.	.	.	.	.	.	1,528,700 00
State tax for 1878	.	.	.	.	.	.	34,770 00
County tax “	.	.	.	.	.	.	25,116 52
Trustees Dowse Institute Fund	.	.	.	.	.	.	10,000 00
“ Daniel White Charity Fund	.	.	.	.	.	.	5,000 00
“ Sanders Temperance Fund	.	.	.	.	.	.	10,000 00
“ Dana Library (Fay Fund)	.	.	.	.	.	.	1,000 00
Total liabilities	.	.	.	.	.	.	\$4,883,586 52

Available Assets.

Cash in treasury	.	.	.	.	.	.	\$31,634 47
Amount of sinking-funds	.	.	.	.	.	.	828,699 05
“ “ sinking-fund of Water-works	.	.	.	.	.	.	291,955 46
Bills receivable, secured by mortgage	.	.	.	.	.	.	3,431 00
Amount paid for surrendered estates	.	.	.	.	.	.	171,618 12
Uncollected taxes, 1874 to 1878, inclusive	.	.	.	.	.	.	191,339 35
“ sewer assessments	.	.	.	.	.	.	7,017 17
<i>Amount carried forward</i>	.	.	.	.	.	.	\$1,525,694 62

<i>Amount brought forward</i>	.	.	.	\$1,525,694 62
Uncollected grading assessments	.	.	.	43,330 08
“ nuisance assessments	.	.	.	40,851 24
“ water bills	.	.	.	9,058 75
“ miscellaneous bills	.	.	.	776 94
Total available assets	.	.	.	\$1,619,711 63
Balance of liabilities over assets	.	.	.	3,263,874 89

In the above statement of liabilities, the item of trust funds, amounting to \$26,000, is included. Although in one view of the matter these funds might be classed among the liabilities of the city, since in most cases the city's notes have been given to the trustees of the several funds, yet in some instances the amounts were actually bequeathed to the city, on condition that a certain rate of interest should be annually paid, and said interest applied to certain specified purposes.

In the opinion of the undersigned, they should not be treated as a liability, since it is believed the city can never be legally called upon to pay over the principal as long as the interest is paid as stipulated. Failing in that, they might then become a liability.

LEDGER BALANCES.

PAGE		Dr.	Cr.
1	Bills receivable	\$550 00	
3	City treasury	31,634 47	
26	City of Cambridge	3,306,472 55	
51	James Pike	3,081 00	
61	Taxes, 1874	7,195 92	
63	Taxes, 1875	11,523 32	
65	Taxes, 1876	14,931 11	
67	Taxes, 1877	29,949 14	
69	Taxes, 1878	127,739 86	
95	Surrendered estates	171,618 12	
99	Cemetery Fund		\$1,650 00
109	Water loan		1,528,700 00
115	Bridge loan		120,000 00
<i>Amounts carried forward</i>		\$3,704,695 49	\$1,650,350 00

<i>Amounts brought forward</i>		\$3,704,695 49	\$1,650,350 00
116	Land loan . . .		10,000 00
117	Building loan . . .		334,000 00
118	City loan . . .		569,000 00
121	Funding loan . . .		340,000 00
122	Low-land loan . . .		883,000 00
123	Paving loan . . .		255,000 00
124	Sewer loan . . .		624,000 00
126	Street-widening loan .		121,000 00
127	Street loan . . .		13,000 00
128	Dowse Institute Fund .		10,000 00
129	Sanders Temperance Fund,		10,000 00
130	Commissioners of sinking-		
	funds	828,699 05	
132	Trustees of sinking-fund		
	of Water-works . . .	291,955 46	
133	Daniel White Charity Fund,		5,000 00
134	Trustees of Dana Library,		1,000 00
		\$4,825,350 00	\$4,825,350 00

A detailed statement of the receipts and expenditures of the city is given in the following pages, and also a tabular statement showing the differences between the Mayor's drafts as shown by the Auditor's books, and the Treasurer's payments, to which attention is called.

Respectfully submitted.

SAML. E. CHANDLER, *Auditor of Accounts.*

AUDITOR'S OFFICE, CITY HALL,
Dec. 20, 1878.

RECEIPTS.

The receipts of the year, as credited to the several city accounts, are shown as follows :—

No.		
1.	Bridges	\$5 00
2.	Bridges (West Boston, Craigie, and Prison Point)	58 40
3.	Cemeteries	10,511 50
4.	Cemetery Fund	300 00
5.	Dana Library	3,015 59
6.	Fire-department	157 16
7.	Incidental expenses	27,363 85
8.	Interest	12,978 64
9.	Lighting streets	41 50
10.	Loan, temporary	445,000 00
11.	Loan, funded water	12,500 00
12.	Pauper-department	4,037 07
13.	Pauper-department (Almshouse)	2,723 78
14.	Pauper-department (House offal)	4,456 60
15.	Pike, James	1,500 00
16.	Police-department	3,960 66
17.	School-department (Drawing-schools)	22 20
18.	School-department (Salaries)	1,573 43
19.	Schoolhouses (Care and repair)	7 97
20.	Sewers (Construction)	2,457 54
21.	Shade-trees and public grounds	12 14
22.	Sinking-funds, commissioners of	7,500 00
23.	Sinking-fund of Water-works, trustees of	300 00
24.	State aid	17,000 00
25.	Street-department (Construction)	1,050 00
26.	Street-department (Paving)	95 10
27.	Street-department (Repairs)	470 15
28.	Street-department (Watering)	7,548 47
29.	Surrendered estates	20,601 59
30.	Surrendered estates (Care and repair)	4,146 70
31.	Tax, corporation	21,052 29
32.	Tax, national bank	19,649 59
33.	Taxes, 1874	2,070 75
34.	Taxes, 1875	1,997 31
35.	Taxes, 1876	60,502 04
36.	Taxes, 1877	123,942 67
37.	Taxes, 1878	796,043 10
38.	Water-works (Rates, fines, &c.)	159,894 74
39.	Water-works (Supplies)	3,784 89
	Total	<u>\$1,780,332 42</u>

EXPENSES.

The expenditures of the year, as charged to the several city accounts, are shown as follows:—

No.		
1.	Abatements and discounts	\$51,974 90
2.	Bridges	6,697 55
3.	Bridges (West Boston, Craigie, and Prison Point)	5,926 22
4.	City debt	20,000 00
5.	Cemeteries	10,360 03
6.	Dana Library	5,999 92
7.	Engineering	6,249 77
8.	Fire-department	59,939 73
9.	Free dispensary	1,000 00
10.	Health-department	1,332 43
11.	Incidental expenses	27,505 74
12.	Interest	203,426 32
13.	Interest on water loan	89,982 00
14.	Lighting streets	19,822 73
15.	Loan, funded (city)	7,500 00
16.	Loan, water	100 00
17.	Loan, temporary	445,000 00
18.	Pauper-department	21,320 59
19.	Pauper-department (Alms-house)	16,653 95
20.	Pauper-department (House offal)	5,861 37
21.	Police-department	65,395 66
22.	Salaries	22,969 69
23.	School-department (Drawing schools)	687 09
24.	School-department (Evening schools)	3,546 69
25.	School-department (Incidental expenses)	4,953 08
26.	School-department (Salaries)	133,491 20
27.	School-department (Text-books and stationery)	3,135 41
28.	Schoolhouses (Care and repair)	23,124 80
29.	Sewers (Construction)	5,742 22
30.	Sewers (Maintenance)	3,795 98
31.	Shade-trees and public grounds	3,531 04
32.	Sinking-funds	164,865 00
33.	Sinking-fund of Water-works	45,480 00
34.	State aid	27,314 95
35.	Stationery and printing	3,850 67
36.	Street-department (Construction)	1,999 57
37.	Street-department (Paving)	6,996 30
38.	Street-department (Repairs)	60,997 59
39.	Street-department (Watering)	14,955 87
40.	Surrendered estates	13,511 85
	<i>Amount carried forward</i>	<u>\$1,616,997 91</u>

	<i>Amount brought forward</i>	.	.	.	.	.	.	.	.	.	\$1,616,997 91
41.	Surrendered estates (Care and repair)	.	.	.	.	.	.	.	.	.	2,507 15
42.	Tax, national bank	.	.	.	.	.	.	.	.	.	6,502 16
43.	Tax, county	.	.	.	.	.	.	.	.	.	30,576 65
44.	Tax, state	.	.	.	.	.	.	.	.	.	52,155 00
45.	Water-works (Construction)	.	.	.	.	.	.	.	.	.	12,752 55
46.	Water-works (Maintenance)	.	.	.	.	.	.	.	.	.	25,229 06
47.	Water-works (Rates, fines, &c.)	.	.	.	.	.	.	.	.	.	994 24
48.	Water-works (Supplies)	.	.	.	.	.	.	.	.	.	1,754 79
	Total	.	.	.	.	.	.	.	.	.	<u>\$1,749,469 51</u>

MAYOR'S DRAFTS AND TREASURER'S PAYMENTS COMPARED, NOV. 30, 1878.

No.	ACCOUNT.	Mayor's Drafts prior to Dec. 1, 1877.	Mayor's Drafts.	Total.	Treasurer's Payments.	Differences.
1	Abatements and Discounts	.	\$51,974 90	\$51,974 90	\$51,974 90	.
2	Bridges	.	6,697 55	6,697 55	6,697 55	.
3	Bridges (W. B., C., & P. Point)	\$8 25	5,926 22	5,934 47	5,810 27	\$124 20
4	Cemeteries	.	10,360 03	10,360 03	10,360 03	.
5	City debt	.	20,000 00	20,000 00	20,000 00	.
6	Dana Library	.	5,999 92	5,999 92	5,999 92	.
7	Engineering	.	6,249 77	6,249 77	6,245 31	4 46
8	Fire-department	3 00	59,939 73	59,942 73	59,820 61	122 12
9	Free dispensary	.	1,000 00	1,000 00	1,000 00	.
10	Health-department	.	1,332 43	1,332 43	1,332 43	.
11	Incidental expenses	29 50	27,505 74	27,535 24	27,491 07	44 17
12	Interest	.	203,426 32	203,426 32	203,426 32	.
13	Interest on water loan	.	89,982 00	89,982 00	89,982 00	.
14	Lighting streets	.	19,822 73	19,822 73	19,817 78	4 95
15	Loan, funded (City)	.	7,500 00	7,500 00	7,500 00	.
16	Loan, temporary	.	445,000 00	445,000 00	445,000 00	.
17	Loan, water	.	100 00	100 00	100 00	.
18	Pauper-department	.	21,320 59	21,320 59	20,794 58	526 01
19	Pauper-department (Alms-house)	49 12	16,653 95	16,703 07	16,534 19	168 88
20	Pauper-department (House of-fal)	.	5,861 37	5,861 37	5,861 37	.
21	Police-department	.	65,395 66	65,395 66	65,334 94	60 72
22	Salaries	.	22,969 69	22,969 69	22,969 69	.
23	School-department (Drawing schools)	.	687 09	687 09	687 09	.
24	School-department (Evening schools)	.	3,546 69	3,546 69	3,546 69	.
25	School-department (Incidental expenses)	.	4,953 08	4,953 08	4,932 88	20 20
26	School-department (Salaries)	.	133,491 20	133,491 20	133,491 20	.
27	School-department (Text-Books and stationery)	1 23	3,135 41	3,136 64	3,136 64	.
28	School-houses (Care and repair)	.	23,124 80	23,124 80	22,997 09	127 71
29	Sewers (Construction)	16 50	5,742 22	5,758 72	5,758 72	.

30	Sewers (Maintenance)	.	.	.	.	.	3,795 98	3,795 98	3,781 47	14 51
31	Shade-trees and public grounds	.	.	.	.	.	3,531 04	3,531 04	3,491 54	39 50
32	Sinking-funds	.	.	.	.	.	164,865 00	164,865 00		.
33	Sinking-fund of Water-works	.	.	.	.	.	45,480 00	45,480 00		.
34	State aid	.	.	.	.	.	27,314 95	27,314 95	26,314 95	1,000 00
35	Stationery and printing	.	.	.	.	.	3,850 67	3,850 67	3,626 67	224 00
36	Street-department (Construction)	.	.	.	.	.	1,999 57	1,999 57	1,904 82	94 75
37	Street-department (Paving)	.	.	.	.	.	6,996 30	6,996 30	6,987 30	9 00
38	Street-department (Repairs)	.	.	.	.	.	60,997 59	60,997 59	60,771 14	226 45
39	Street-department (Watering)	.	.	.	.	.	14,955 87	14,955 87	14,755 62	200 25
40	Surrendered estates	.	.	.	.	.	13,511 85	13,511 85	13,511 85	.
41	Surrendered estates (Care and repair)	.	.	.	.	.	2,507 15	2,507 15	2,495 33	11 82
42	Tax, national bank	.	.	.	.	.	6,502 16	6,502 16	6,502 16	.
43	Tax, county	.	.	.	.	.	30,576 65	30,576 65	30,576 65	.
44	Tax, state	.	.	.	.	.	52,155 00	52,155 00	52,155 00	.
45	Water-works (Construction)	.	.	.	.	.	12,752 55	12,752 55	12,752 55	.
46	Water-works (Maintenance)	.	.	.	.	.	25,229 06	25,229 06	25,129 65	99 41
47	Water-works (Rates, fines, &c.)	.	.	.	.	.	994 24	994 24	881 58	112 66
48	Water-works (Supplies)	.	.	.	.	.	1,754 79	1,754 79	1,754 79	.
	Totals	.	.	.	.	.	\$1,749,469 51	\$1,749,577 11	\$1,746,341 34	\$3,235 77

NOTE. — In the above statement the column of "Differences" shows the amounts drawn for and charged to the several city accounts in the Auditor's office to Nov. 30, 1878, but not paid by the Treasurer at that date.

DETAILED STATEMENT

SHOWING RECEIPTS AND EXPENDITURES AND AMOUNTS APPROPRIATED, UNDER EACH CITY ACCOUNT, FOR THE FINANCIAL YEAR ENDING NOV. 30, 1878.

Abatements and Discounts.

Amount appropriated \$55,000 00

Expended.

For Abatements of taxes . . . \$21,913 85

Discounts on taxes . . . 30,061 05

Total, as per item No. 1 of expenses . . . 51,974 90

Balance unexpended \$3,025 10

Bridges.

Amount appropriated \$6,000 00

Add amount transferred 700 00

\$6,700 00

Received.

For Damage to draw \$5 00

Total, as per item No. 1 of receipts 5 00

\$6,705 00

Expended.

For Advertising \$29 80

Castings and ironwork . . . 83 99

Extra labor 13 25

Fence 45 00

Hardware and tools 44 93

Amounts carried forward . . . \$216 97 \$6,705 00

<i>Amounts brought forward</i>	\$216 97	\$6,705 00
For Hoisting draw	353 25	
Labor, as per pay-roll	2,431 03	
Lumber	209 05	
Repairs, general	3,487 25	
Total, as per item No. 2 of expenses		6,697 55
Balance unexpended		\$7 45

Bridges (West Boston, Craigie's, and Prison Point).

Amount appropriated	\$7,000 00
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Received.

For Wharfage	\$20 00
Sheathing on draw	38 40
Total, as per item No. 2 of receipts	58 40
	\$7,058 40

Expended.

For Advertising	\$9 37
Damages, G. W. Goodnow	100 00
Fuel	235 09
Gas	919 95
Hardware and tools	41 50
Ironwork and castings	64 72
Labor, as per pay-roll	2,079 85
Lighting lamps	12 92
Lumber	176 26
Oil, glass, &c.	55 43
Paving	985 94
Repairs, general	224 51
Salary of E. Parmenter, commis- sioner	583 33
Sweeping and cleaning	128 35
Water-rates	9 00
Watering roadway	300 00
Total, as per item No. 3 of expenses	5,926 22
Balance unexpended	\$1,132 18

*Cemeteries.**Received.*

For Sale and care of lots	\$9,256 75	
Burial fees	1,254 75	
Total, as per item No. 3 of receipts		\$10 511 50

Expended.

For Car-tickets	\$20 00	
Cement and ashes	245 00	
Expressage	14 98	
Fence on grounds	130 24	
Grave-covers	28 32	
Hardware and tools	159 09	
Hose	6 00	
Labor, as per pay-roll	5,874 03	
Lumber	21 65	
Number stones	36 00	
Posts	215 50	
Plumbing	24 75	
Printing	13 75	
Repairs, general	25 58	
Repairs of wagon	14 20	
Rope and blocks	20 80	
Salary J. K. Farwell, sup't.	1,424 94	
Sodding and manure	950 00	
Soldiers' monument	572 00	
Stationery and office expenses	29 15	
Stone and brick	42 36	
Trees and plants	316 64	
Tomb ventilator	55 00	
Water-rates	53 80	
Ward One grounds, care of	66 25	
Total, as per item No. 5 of expenses		10,360 03
Balance unexpended		\$151 47

Cemetery Fund.

Amount of fund Nov. 30, 1877	\$1,350 00
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Received.

For Perpetual care of lots in Cambridge Cemetery, as per item No. 4 of receipts	300 00
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Amount of fund Nov. 30, 1878	<u>\$1,650 00</u>
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City Debt.

Amount appropriated	\$20,000 00
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Expended.

For City note, due Oct. 10, 1878, as per item No. 4 of expenses	<u>20,000 00</u>
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Dana Library.

Amount appropriated	\$3,150 00
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Received.

For Dog licenses from county . . .	\$2,873 14
Catalogues and fines	142 45

Total, as per item No. 5 of receipts	<u>3,015 59</u>
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	<u>\$6,165 59</u>
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Expended.

For Assistants, as per pay-roll . . .	\$1,369 05
Books and papers	1,811 90
Book-rests	6 75
Binding books, &c.	264 69
Expressage	5 24
Gas	347 13
Postage	2 95
Printing	432 06
Rent of rooms	1,000 00

<i>Amounts carried forward</i>	<u>\$5,239 77</u>	<u>\$6,165 59</u>
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<i>Amounts brought forward</i>	\$5,239 77	\$6,165 59
For Repairs, general	29 07	
Salary of A. L. Hayward, librarian	600 00	
Stationery	99 79	
Sundry expenses	17 79	
Water-cooler	2 50	
Water rates	9 00	
Watering street	2 00	
Total, as per item No. 6 of expenses		5,999 92
Balance unexpended		\$165 67

Engineering.

Amount appropriated	\$6,500 00
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Expended.

For Bounds, stone	\$6 62	
Car-tickets	91 20	
Carriage-hire	20 00	
Directory	5 00	
Drawing-materials	39 97	
Expressage	1 40	
Floats	3 50	
Hardware	1 18	
Instruments and repairs	50 46	
Recording plan	1 50	
Rubber boots	7 95	
Salary of W. S. Barbour, engineer	2,979 16	
Services of assistants	3,037 83	
Stonework	4 00	
Total, as per item No. 7 of expenses		6,249 77
Balance unexpended		\$250 23

Fire-Department.

Amount appropriated \$59,850 00

Received.

For Hose	\$1 00
Carboy returned	1 50
Flag-staff	10 00
Old material	44 40
Manure	99 00
Wire	1 26

Total, as per item No. 6 of receipts 157 16

\$60,007 16

Expended.

For Advertising	\$8 00
Alarms for fires	41 50
Beds and bedding	190 29
Boats, use of	67 25
Brooms and brushes	136 00
Car-tickets	6 00
Damage to roof	23 40
Damage to wagon	13 20
Expressage	48 05
Fines of members	182 00
Fuel	1,068 72
Furniture and repairs	150 84
Gas	1,144 92
Gas-carburetter	73 85
Hay, grain, and straw	2,215 30
Harnesses and repairs	172 97
Hardware and tools	193 18
Horse	225 00
Horse-hire	922 50
Horse-shoeing	495 58
Horse-keeping	18 00
Horse medicines	23 58

Amounts carried forward \$7,420 13 \$60,007 16

	<i>Amounts brought forward</i>	\$7,420 13	\$60,007 16
For	Hose and repairs	908 04	
	Ice	46 85	
	Labor on telegraph	521 08	
	Labor on hydrants	231 10	
	Lanterns	22 00	
	Oil and matches	119 66	
	Paving	6 84	
	Printing	40 00	
	Rent	90 00	
	Repairs of apparatus	1,673 07	
	Repairs of houses	627 07	
	Repairs of reservoirs	64 96	
	Services of P. H. Raymond, chief engineer	1,300 00	
	Services of R. F. Tobin, assist- ant engineer	433 33	
	Services of T. J. Casey, assist- ant engineer	433 33	
	Services of C. W. Brackett, assistant engineer	433 33	
	Services of N. W. Bunker, assist- ant engineer	487 49	
	Services of engine-men	36,549 15	
	Soap and salt	62 51	
	Telegraph supplies and repairs	1,071 24	
	Teaming	52 55	
	Veterinary services	191 00	
	Washing	409 44	
	Waste	35 56	
	Water for hydrants	6,545 00	
	Water-rates	165 00	
Total, as per item No. 8 of expenses			59,939 73
Balance unexpended			\$67 43

Free Dispensary.

Amount appropriated \$1,000 00

Expended.

For Dispensary purposes \$1,000 00

Total, as per item No. 9 of expenses 1,000 00

Health-Department.

Amount appropriated \$2,000 00

Expended.

For Analysis of water \$100 00

Badge 3 50

Burying animals 2 25

Car-tickets 35 00

Gravel and labor 105 40

Laying drains 30 00

Postal cards and stamps 16 25

Printing 25 75

Services of E. R. Cogswell,
health-officer 666 67

Services of H. P. Walcott, city
physician 225 00

Services of clerk of board 73 87

Serving notice 3 00

Stationery 45 74

Total, as per item No. 10 of expenses 1,332 43

Balance unexpended \$667 57

Incidental Expenses.

Amount appropriated \$5,600 00

Received.

For Armory-rent from State . . . \$800 00

Assessments, costs on 71 71

Court fees 96 91

Amounts carried forward . . . \$968 62 \$5,600 00

<i>Amounts brought forward</i> . . .	\$968 62	\$5,600 00
For City clerk, for fees and licenses	1,586 50	
Collector's costs . . .	43 29	
Impounding animals . . .	4 20	
Liquor-licenses . . .	22,065 00	
Mounting voting-lists . . .	3 15	
Nuisance assessments . . .	1,060 26	
Old carpeting . . .	3 00	
Premium on gold . . .	65	
Recording deeds . . .	2 55	
Rent of public buildings . . .	1,321 63	
Sealer's fees . . .	144 34	
Taxes, costs on . . .	124 00	
Weigher's fees . . .	36 66	
Total, as per item No. 7 of receipts . . .	.	27,363 85
		\$32,963 85

Expended.

For Advertising . . .	\$690 15	
Assessments refunded . . .	59 10	
Bill-posting . . .	16 00	
Bathing-yards, repairs of . . .	10 63	
Bonds, engraving and printing . . .	25 00	
Box-rent, post-office . . .	8 00	
Car-tickets . . .	394 00	
Carriage-hire . . .	91 87	
Church-clocks, care of . . .	185 25	
Clerical assistance . . .	2,170 00	
Clerical assistance to treasurer . . .	802 76	
Damages awarded Sawyer, Thomas, & Co. . . .	675 25	
Damages awarded Wm. Garvin . . .	25 00	
Damages awarded Joseph Carr, . . .	200 00	
Damages awarded Watson & Bisbee	225 43	
Damages awarded Lucy A. Drake	50 00	
<i>Amounts carried forward</i> . . .	\$5,628 44	\$32,963 85

<i>Amounts brought forward . . .</i>	\$5,628 44	\$32,963 85
For Damages awarded Amanda Engley	3,545 78	
Damages awarded C. E. Tibbetts	40 00	
Damages awarded Amos Cutter	1,685 15	
Damages awarded E. W. Reed	28 25	
Damages awarded Thomas Doyle	20 25	
Deeds, recording and abstracts of	452 56	
Directories	65 00	
Drugs	2 25	
Expressage and teaming	72 61	
Fees of city clerk	930 40	
Gas	134 85	
Hand-stamps	12 00	
Hardware and tools	2 06	
Inauguration expenses	40 00	
Legal services and expenses	712 62	
Memorial Day	500 00	
Newspapers	29 00	
Notices, distributing	181 70	
Nuisance, abating	184 84	
Page of Common Council, services of	50 00	
Refunds for defective tax titles	566 29	
Registration books	59 50	
Rent of box in safety-vaults	20 00	
Reporting deaths.	156 50	
Ringling bells	194 00	
Services of assistant messenger	1,095 00	
Services of assistant assessors	612 50	
Sealer's expenses	33 23	
Taking census	130 00	
Tax bills and notices, making	454 00	
<i>Amounts carried forward . . .</i>	\$17,638 78	\$32,963 85

<i>Amounts brought forward</i> . . .	\$17,638 78	\$32,963 85
For Taxes, Belmont . . .	76 95	
Taxes, Somerville . . .	893 00	
Taxes, refunded . . .	64 54	
Voting-lists . . .	5 25	
Ward-rooms, rent and care of .	136 00	
Ward-officers, services of .	250 00	
Weighing coal . . .	99 00	
City Hall:—		
Awnings, erecting . . .	15 00	
Brooms, brushes, &c. . .	24 40	
Fuel . . .	241 21	
Gas . . .	502 57	
Hardware and tools . . .	34 70	
Ice . . .	106 87	
Mats and shades . . .	73 24	
Repairs, carpenter's work .	533 25	
Repairs, slating and tinning .	101 35	
Repairs, mason's work . .	83 70	
Repairs, plumbing . . .	60 20	
Repairs, painting and glazing	271 69	
Repairs, heating apparatus .	123 31	
Repairs, furniture and fixtures . . .	581 93	
Washing and cleaning and materials . . .	671 53	
Water rates . . .	93 00	
Wire railing . . .	184 62	
Ward One Building:—		
Cleaning . . .	15 50	
Fuel . . .	553 61	
Gas . . .	217 49	
Gas carburetter, use of .	226 63	
Hardware and tools . . .	1 80	
Painting signs . . .	44 00	
Repairs, general . . .	108 09	
Services of janitor . . .	1,249 96	
Water rates . . .	80 35	
<i>Amounts carried forward</i> . . .	\$25,363 52	\$32,963 85

<i>Amounts brought forward</i>	\$25,363 52	\$32,963 85
For Ward Four Building: —		
Cleaning	63 60	
Fuel	221 53	
Gas	180 38	
Hardware and tools	22 81	
Repairs, general	367 65	
Services of janitor	1,250 00	
Water rates	36 25	
Total, as per item No. 11 of expenses		27,505 74
Balance unexpended		\$5,458 11

Interest.

Amount appropriated	\$198,040 00
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Received.

On Grading assessments	\$1,679 68	
Taxes	10,164 71	
Advances to sinking funds	1,134 25	
Total, as per item No. 8 of receipts		12,978 64
		\$211,018 64

Expended.

On Bridge loan	\$6,840 00	
Building loan	19,260 00	
Cemetery fund	93 50	
City loan	29,760 94	
City debt	775 00	
Dowse Institute Fund	600 00	
Daniel White Charity Fund	300 00	
Funding loan	19,770 00	
Land loan	630 00	
Low-land loan	53,080 00	
Over-drafts	135 23	
Paving loan	15,360 00	
Sanders Temperance Fund	600 00	
<i>Amounts carried forward</i>	\$147,204 67	\$211,018 64

<i>Amounts brought forward</i>	\$147,204 67	\$211,018 64
On Sewer loan	37,140 00	
Sinking fund of Water-works	388 81	
Street loan	780 00	
Street-widening loan	7,260 00	
Temporary loans	10,652 84	
Total, as per item No. 12 of expenses		203,426 32
Balance unexpended		<u>\$7,592 32</u>

Interest on Water Loan.

Amount transferred	\$90,000 00
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Expended.

On Water loan	\$89,982 00
Total, as per item No. 13 of expenses	89,982 00
Balance unexpended	<u>\$18 00</u>

Lighting Streets.

Amount appropriated	\$21,000 00
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Received.

For Damage to lanterns and posts, ...	\$41 50
Total, as per item No. 9 of receipts	41 50
	\$21,041 50

Expended.

For Alcohol	\$69 80
Expressage	5 75
Gas	12,768 42
Hardware and tools	3 00
Ladders	27 00
Lamp-fixtures	116 02
Lamp-posts, &c.	272 08
Lanterns and repairs	475 27
Lighting and care of lamps	5,382 28
<i>Amounts carried forward</i>	\$19,119 62
	\$21,041 50

<i>Amounts brought forward</i>	.	\$19,119 62	\$21,041 50
For Oil and matches	. . .	265 78	
Printing		4 00	
Services of B. F. Nourse, sup't.		433 33	
Total, as per item No. 14 of expenses	. . .		19,822 73
Balance unexpended			\$1,218 77

Loan Funded (City).

Amount Nov. 30, 1877		\$3,276,500 00
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Expended.

For City bond payable in 1877	.	\$500 00
City bonds payable in 1878	.	7,000 00
Total, as per item No. 15 of expenses	. . .	7,500 00
Amount Nov. 20, 1878		\$3,269,000 00

Loan (Temporary).***Received.***

For City notes, due Oct. 10, 1878	.	\$445,000 00
Total, as per item No. 10 of receipts	. . .	\$445,000 00

Expended.

For City notes, due Oct. 10, 1878	.	\$445,000 00
Total, as per item No. 17 of expenses	. . .	445,000 00

Loan Funded (Water).

Amount Nov. 30, 1877		\$1,516,300 00
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Received.

For One five per cent registered bond, due 1898,		
as per item No. 11 of receipts	. . .	12,500 00
		\$1,528,800 00

Expended.

For Water bond, due May 1, 1875	.	\$100 00
Total, as per item No. 16 of expenses	. . .	100 00
Amount Nov. 30, 1878		\$1,528,700 00

Pauper-Department.

Amount appropriated	\$16,000 00
Add amount transferred	1,300 00
	\$17,300 00

Received.

For Aid to paupers, other cities and towns	\$3,385 44	
Aid to pauper soldiers	27 95	
Aid to paupers, Commonwealth	217 59	
Board of persons at institutions	323 16	
Office expenses	82 93	
Total, as per item No. 12 of receipts		4,037 07
		\$21,337 07

Expended.

For Aid to paupers	\$117 94	
Aid to paupers, other cities and towns	2,694 78	
Aid to paupers, Commonwealth	1,098 55	
Boots and shoes	185 95	
Burial of paupers	228 00	
Car tickets and fares	264 60	
Clerical assistance in office	578 21	
Clothing	15 00	
Driver of wagon, and watchman	293 91	
Fuel	705 05	
Groceries	1,383 37	
Ice	4 00	
Institutions, board of paupers	9,814 67	
Medical attendance	359 85	
Medicines	46 26	
Office expenses	80 68	
Postage	43 25	
Printing	90 25	
Provisions	222 15	
Amounts carried forward	\$18,226 47	\$21,337 07

<i>Amounts brought forward</i>	\$18,226 47	\$21,337 07
For Rents of tenements	420 00	
Rent of office	75 00	
Repairs of wagon	40 50	
Services of Secretary of Board	1,200 00	
Services of visitor	1,168 00	
Stationery	110 62	
Transportation of paupers	80 00	
Total, as per item No. 18 of expenses		21,320 59
Balance unexpended		\$16 48

Pauper-Department (Almshouse).

Amount appropriated	\$19,000 00
Less amount transferred	1,300 00
	\$17,700 00

Received.

For Aid to paupers, other cities and towns	\$213 75	
Amount duplicate bills refunded	42 29	
Board of paupers, soldiers	287 00	
Farm products	447 45	
Office expenses	392 48	
Paupers, board of	120 00	
Stone, gravel, &c.	1,220 81	
Total, as per item No. 13 of receipts		2,723 78
		\$20,423 78

Expended.

For Baker, labor of	\$316 00	
Books and stationery	95 34	
Boots and shoes, and repairs	269 33	
Brick	27 50	
Car-tickets	38 15	
Carriage	160 00	
<i>Amounts carried forward</i>	\$906 32	\$20,423 78

<i>Amounts brought forward</i>	\$906 32	\$20,423 78
For Carpeting	65 50	
Cement and lime	15 85	
Clerical services	18 75	
Clipping horse	3 00	
Clocks and repairs	6 25	
Clothing	232 90	
Cows	125 00	
Crockery and tinware	108 77	
Dry goods	461 86	
Expressage	1 70	
Fish	322 15	
Fuel	1,921 22	
Gas	390 34	
Gas-fixtures	93 20	
Groceries	1,632 84	
Hardware and tools	195 64	
Heating-apparatus, repairs of	18 08	
Hay, grain, and straw	171 42	
Horse-shoeing	16 99	
Hospital supplies	42 75	
Ice	148 00	
Labor at farm and ledge	1,294 54	
Lumber	96 94	
Mason-work	116 18	
Medicines	142 82	
Newspapers	21 00	
Oil	22 30	
Organist, services of	22 00	
Plants and seeds	42 66	
Plumbing	144 14	
Powder and fuse	80 80	
Provisions	4,024 22	
Postage-stamps	5 00	
Repairs to wagon	6 00	
Repairs to furniture	39 75	
Services, W. E. Hough, warden	800 00	
<i>Amounts carried forward</i>	\$13,756 88	\$20,423 78

<i>Amounts brought forward</i> . . .	\$13,756 88	\$20,423 78
For Services, J. R. Morse, physician . . .	266 66	
Services, A. Stewart, chaplain . . .	125 00	
Services, as per pay-roll . . .	1,628 00	
Soap	247 32	
Tobacco	189 61	
Treat for children	20 00	
Washing and scrubbing	84 46	
Water rates	198 30	
Wooden-ware and brushes	109 47	
White-washing	28 25	
Total, as per item No. 19 of expenses		16,653 95
Balance unexpended		\$3,769 83

Pauper-Department (House Offal).

Amount appropriated \$2,000 00

Received.

For Offal \$4,456 60

Total, as per item No. 14 of receipts 4,456 60

\$6,456 60

Expended.

For Buckets \$10 00

Brick 10 00

Hay, grain, and straw 609 82

Harnesses and repairs 91 40

Hardware and tools 37 28

Horse-shoeing 189 75

Iron and steel for repairs 307 56

Labor as per pay-roll 4,210 00

Lumber 94 33

Repairs to wagons 253 23

Veterinary services 48 00

Total, as per item No. 20 of expenses 5,861 37

Balance unexpended \$595 23

Police-Department.

Amount appropriated \$62,300 00

Received.

For Amount duplicate bill refunded	\$5 37
Court penalties	20 00
Extra services of officers	39 55
Police-court fees	3,835 74
Stakes and ropes, use of	60 00

Total, as per item No. 16 of receipts	3,960 66
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\$66,260 66

Expended.

For Advertising	\$10 50
Buttons and straps	54 80
Burying animals	20 06
Buggy	75 00
Car-fares and telegrams	21 47
Directories	22 50
Expressage and teaming	7 70
Food for prisoners	120 00
Fuel	457 16
Furniture and repairs	78 03
Gas	818 67
Gas-carburetter, use of	64 30
Hardware and tools	88 60
Harnesses, repairs of	37 79
Hay, grain, and straw	110 78
Horse-keeping	255 00
Horse-hire	19 50
Horse-shoeing	94 50
Ice	28 66
Insect-powder	4 50
Medical attendance	77 99
Oil and matches	13 95
Photograph of dead body	5 00

<i>Amounts carried forward</i>	\$2,486 46	\$66,260 66
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<i>Amounts brought forward</i>	\$2,486 46	\$66,260 66
For Police-boat, repairs of	16 00	
Printing	105 55	
Repairs of wagon	26 05	
Repairs of telegraph	76 21	
Repairs at stations	449 04	
Services of G. H. Copeland, chief	494 38	
Services of F. W. Hagar, chief	1,455 62	
Services of policemen, as per pay-roll	60,125 41	
Transportation of prisoners	17 50	
Washing and cleaning	102 44	
Water rates	41 00	
Total, as per item No. 21 of expenses		65,395 66
Balance unexpended		\$865 00

62075 41

332

Pike, James.

Amount of his note \$4,581 00

Received.

For Amount paid on account . . . \$1,500 00

Total, as per item No. 15 of receipts . . . 1,500 00

Balance due \$3,081 00

Salaries.

Amount appropriated \$21,325 00

Add amount transferred 1,650 00

\$22,975 00

Expended.

Paid Frank A. Allen, mayor . . . \$562 50

Samuel L. Montague, mayor . . . 1,875 00

Joseph Whitney, treasurer and
collector 894 66

Amounts carried forward . . . \$3,332 16 \$22,975 00

<i>Amounts brought forward</i>	\$3,332 16	\$22,975 00
Paid William W. Dallinger, treasurer and collector	3,062 55	
Justin A. Jacobs, city clerk	3,000 00	
Justin A. Jacobs, city auditor	225 00	
Samuel E. Chandler, city auditor	1,250 00	
Walter W. Pike, assistant city clerk	833 33	
John W. Hammond, city solicitor	2,166 66	
John McDuffie, clerk of committees	1,625 00	
J. Warren Cotton, clerk of common council	325 00	
Levi L. Cushing, assessor	1,625 00	
Artemas Z. Brown, assessor	1,625 00	
Andrew J. Green, assessor	1,625 00	
Francis L. Pratt, city messenger	1,625 00	
Stephen P. Sharples, sealer, &c.	433 33	
Stephen P. Sharples, inspector of milk	216 66	
Total, as per item No. 22 of expenses		22,969 69
Balance unexpended		<u>\$5 31</u>

School-Department (Drawing-Schools).

Amount appropriated		\$1,000 00
<i>Received.</i>		
For Materials furnished pupils	\$22 20	
Total, as per item No. 17 of receipts		22 20
		<u>\$1,022 20</u>
<i>Expended.</i>		
For Advertising	\$3 50	
Drawing-materials	30 19	
<i>Amounts carried forward</i>	\$33 69	<u>\$1,022 20</u>

<i>Amounts brought forward</i>	\$33 69	\$1,022 20
For Janitors, services of	100 00	
Moving furniture	4 65	
Printing	2 75	
Services of teachers	537 00	
Ventilator	9 00	
Total, as per item No. 23 of expenses		687 09
Balance unexpended		\$335 11

School-Department (Evening-Schools).

Amount appropriated	\$4,000 00
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Expended.

For Advertising	\$5 00	
Brushes	3 65	
Cleaning	2 00	
Printing	11 25	
Repairs, general	2 63	
Services of janitors	279 00	
Services of teachers	3,235 50	
Text-books	7 66	
Total, as per item No. 24 of expenses		3,546 69
Balance unexpended		\$453 31

School-Department (Incidental Expenses).

Amount appropriated	\$4,725 00
Add amount transferred	400 00
	\$5,125 00

Expended.

For Advertising	\$38 25	
Alphabet blocks	20 00	
Apparatus for High School	16 80	
Blackboard erasers	34 35	
<i>Amounts carried forward</i>	\$109 40	\$5,125 00

<i>Amounts brought forward</i>	\$109 40	\$5,125 00
For Collecting statistics	10 00	
Chemicals and apparatus	54 27	
Cushions, repairs of	20 75	
Car-tickets	40 00	
Diplomas	126 20	
Expressage	3 75	
Furnace regulator	80 00	
Gas	229 97	
High-school graduating class	50 00	
Incidental expenses of superintendent	10 55	
Librarian High School	50 00	
Metric apparatus	13 00	
Magazine	1 75	
Oil and matches	1 20	
Printing and binding	506 97	
Paper	5 00	
Repairs to chairs	11 60	
Records of High School	100 00	
Ribbon for graduating class	14 00	
Services of truant-officers	3,129 80	
Services of secretary of committee	300 00	
Services of page of committee	25 00	
Sewing-materials	1 50	
Stationery for superintendent of schools	14 62	
Tabulating census returns	20 00	
Tuning pianos	17 50	
Thermometers	6 25	
Total, as per item No. 25 of expenses		4,953 08
Balance unexpended		<u>\$171 92</u>

School-Department (Salaries).

Amount appropriated \$135,350 00

Received.

For Tuition of non-resident pupils . \$795 00

Income of Hopkins Fund . 778 43

Total, as per item No. 18 of receipts . . . 1,573 43

\$136,923 43

Expended.

For Salary of F. Cogswell, super-
intendent of schools . . \$2,720 00

Salary of teachers, as per pay-
roll 130,771 20

Total, as per item No. 26 of expenses . . . 133,491 20

Balance unexpended \$3,432 23

School-Department (Text-Books and Stationery).

Amount appropriated \$4,000 00

Expended.

For Books and stationery . . \$3,103 06

Cards 26 50

Maps 5 85

Total, as per item No. 27 of expenses . . . 3,135 41

Balance unexpended \$864 59

Schoolhouses (Care and Repair).

Amount appropriated \$22,000 00

Add amount transferred 2,500 00

Amount carried forward \$24,500 00

Amount brought forward \$24,500 00

Received.

For Amount of duplicate bill re-		
funded	\$7 97	
Total, as per item No. 19 of receipts		7 97
		\$24,507 97

Expended.

For Advertising	\$9 00	
Blackboards and repairs	369 46	
Brushes and dusters	173 21	
Carpeting	38 42	
Desks and settees	275 20	
Drawing-stands	102 00	
Fuel	5,235 25	
Grading and draining	185 03	
Hardware and tools	175 59	
Heating-apparatus and repairs	830 07	
Ink-wells	95 54	
Labor	30 30	
Lumber	19 53	
Mats and shades	222 60	
Repairs to clocks and bells	89 62	
Repairs, carpenter's work	3,767 91	
Repairs, mason's work	460 60	
Repairs, plumbing	304 80	
Repairs, painting and glazing	386 78	
Repairs, slating and roofing	494 97	
Services of janitors	9,171 32	
Supplies, janitors	130 10	
Ventilators, repairs of	32 00	
Water rates	509 00	
Whitewashing	16 50	
Total, as per item No. 28 of expenses		23,124 80
Balance unexpended		\$1,383 17

Sewers (Construction).

Amount appropriated \$5,500 00

Received.

For Assessments \$2,457 54

Total, as per item No. 20 of receipts 2,457 54

\$7,957 54

Expended.

For Amount of assessments refunded \$2,164 52

Advertising 19 00

Castings 4 56

Catch-basins 1,531 61

Connecting with sewer 7 35

Constructing sewers 1,790 45

Laying drain-pipes 220 53

Lumber 4 20

Total, as per item No. 29 of expenses 5,742 22

Balance unexpended \$2,215 32

Sewers (Maintenance).

Amount appropriated \$9,000 00

Expended.

For Advertising \$4 30

Brick 4 00

Castings 19 13

Catch-basins, repairs of 212 57

Catch-basins, cleaning 624 00

Cesspools, repairs of 192 20

Cesspools, cleaning 1,533 40

Drains, repairs of 712 32

Gratings 15 00

Amounts carried forward \$3,316 92 \$9,000 00

<i>Amounts brought forward</i>	\$3,316 92	\$9,000 00
For Gravel	6 40	
Hardware and tools	72 72	
Oil, &c.	9 68	
Sand and cement	18 45	
Sewer buckets	23 23	
Teaming	10 50	
Labor	270 20	
Lumber	67 88	
Total, as per item No. 30 of expenses		3,795 98
Balance unexpended		\$5,204 02

Shade-Trees and Public Grounds.

Amount appropriated	\$4,500 00
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Received.

Amount duplicate bill refunded	\$12 14	
Total, as per item No. 21 of receipts		12 14
		\$4,512 14

Expended.

For Bird-houses	\$6 77	
Car-fares	1 40	
Carpenter's work	12 10	
Gravel	38 25	
Hardware and tools	119 51	
Horse-hire	330 50	
Hose and repairs	21 27	
Incidental expenses of forester, ...	47 22	
Labor	1,852 24	
Lumber	26 11	
Laying wall	15 00	
Labor on pound	6 00	
Painting	10 00	
Repairing fences	30 57	
<i>Amounts carried forward</i>	\$2,516 94	\$4,512 14

<i>Amounts brought forward</i>	\$2,516 94	\$4,512 14
For Rent of land	20 00	
Repairs of flagstaff	16 72	
Services of G. W. White, for- ester	150 00	
Teaming and expressage	86 75	
Tree ink	26 04	
Trees and plants	19 59	
Water rates	695 00	
Total, as per item No. 31 of expenses		3,531 04
Balance unexpended		\$981 10

Sinking-Funds, Commissioners of.

Amount of fund, Nov. 30, 1877 \$643,134 30

Received.

From City Treasurer, amount of appropriation by City Council	\$164,865 00	
Amount of interest to Nov. 30, 1878, ...	28,199 75	
		193,064 75
		\$836,199 05

Expended.

For amount paid City Treasurer for redemption of bonds due, as per item No. 15 of expenses, ...	\$7,500 00	
		7,500 00
Amount of fund Nov. 30, 1878		\$828,699 05

Sinking-Fund of Water-Works, Trustees of.

Amount of fund Nov. 30, 1877 \$233,431 87

Received.

For amount of revenue from Water Works (Rates, fines, &c.)	\$45,480 00	
<i>Amounts carried forward</i>	\$45,480 00	\$233,431 87

<i>Amounts brought forward</i> . .	\$45,480 00	\$233,431 87
Interest to Nov. 30, 1878 . .	14,041 33	
		59,521 33
		\$292,953 20

Expended.

For Amount paid City Treasurer for redemption of bonds due .	\$300 00	
Amount erroneously included in the amount of fund Nov. 30, 1877	697 74	
		997 74
Amount of fund Nov. 30, 1878		\$291,955 46

State Aid.

Amount appropriated	\$2,000 00
Add amount transferred	12,000 00
	\$14,000 00

Received.

For amount of State allotment .	\$17,000 00	
Total, as per item No. 24 of receipts	17,000 00	
		\$31,000 00

Expended.

For amount paid B. F. Davies, treasurer of committee	\$27,314 95	
Total, as per item No. 34 of expenses	27,314 95	
Balance unexpended		\$3,685 05

Stationery and Printing.

Amount appropriated	\$3,500 00
Add amount transferred	600 00
<i>Amount carried forward</i>	\$4,100 00

Amount brought forward \$4,100 00

Expended.

For Printing mayor's address	\$39 16
Printing, miscellaneous	930 78
Printing licenses	32 50
Printing city documents	1,063 64
Record books	42 00
Stationery and blank books	1,406 34
Voting lists	336 25

Total, as per item No. 35 of expenses 3,850 67

Balance unexpended \$249 33

Street-Department (Construction).

Amount appropriated	\$700 00
Add amount transferred	250 00

\$950 00

Received.

For Betterments	\$1,050 00
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Total, as per item No. 25 of receipts 1,050 00

\$2,000 00

Expended.

For Advertising	\$2 00
Bulkhead	1,245 80
Damage for land taken	201 25
Fence to bulkhead	37 40
Hardware and tools	71 37
Labor	199 50
Labor, as per pay-roll	94 75
Lumber	81 50
Painting bulkhead	24 50
Repairs to wagon	41 50

Total, as per item No. 36 of expenses 1,999 57

Balance unexpended \$0 43

Street-Department (Paving).

Amount appropriated	\$7,000 00
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Received.

For Sidewalk assessments	\$95 10
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Total, as per item No. 26 of receipts	95 10
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	\$7,095 10
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Expended.

For Brick	\$123 40
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Gravel	70 87
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Labor, as per pay-roll	952 00
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Paving	4,201 15
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Sand	371 30
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Stone	901 58
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Teaming	376 00
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Total, as per item No. 37 of expenses	6,996 30
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Balance unexpended	\$98 80
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Street-Department (Repairs).

Amount appropriated	\$59,900 00
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Add amount transferred	1,000 00
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	\$60,900 00
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Received.

For Ashes, gravel, &c.	\$426 70
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Moving stand-pipe	43 45
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Total, as per item No. 27 of receipts	470 15
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	\$61,370 15
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Expended.

For Advertising	\$7 50
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Amounts carried forward	\$7 50	\$61,370 15
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<i>Amounts brought forward</i>	\$7 50	\$61,370 15
For Axle-grease	29 00	
Broom-stock	6 00	
Blacksmith's work	25 95	
Castings	14 09	
Cement and lime	7 00	
Car-tickets	10 00	
Damages awarded Meriam & Kendall	500 00	
Damages awarded E. H. Marvin	150 00	
Damages awarded A. C. Jones, attorney	300 00	
Extra labor	46 65	
Fuel	45 43	
Gravel	15,807 57	
Gas	104 69	
Harnesses and repairs	185 97	
Hay, grain, and straw	3,442 11	
Horse-blankets	12 50	
Horses	1,055 00	
Horse-shoeing	673 07	
Labor, as per pay-roll	26,452 29	
Lumber	314 03	
Mason's work	6 50	
Printing	9 00	
Rent of land for storage	100 00	
Repairs of wagons and carts	478 58	
Repairs of stone-crusher	341 00	
Repairs of tools	327 01	
Retaining-wall	998 00	
Stable, repairs of	38 00	
Salary of S. P. Shepherd, super- intendent of streets	1,950 00	
Stone	6,039 87	
Signs, street	23 25	
Teaming and freight	1,140 89	
Tools and repairs	244 64	
Veterinary services	66 00	
<i>Amounts carried forward</i>	<u>\$60,951 59</u>	<u>\$61,370 15</u>

<i>Amounts brought forward</i>	\$60,951 59	\$61,370 15
For Water rates	46 00	
Total, as per item No. 38 of expenses		\$60,997 59
Balance unexpended		\$372 56

Street-Department (Watering).

Amount appropriated	\$8,000 00
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Received.

For Watering streets	\$7,521 00	
Moving stand-pipe, one-half cost	27 47	
Total, as per item 28 of receipts		7,548 47
		\$15,548 47

Expended.

For Advertising	\$21 52	
Moving stand-pipe	54 95	
Repairs of carts	707 90	
Services of superintendent	400 00	
Water	4,357 50	
Watering streets	9,414 00	
Total, as per item No. 39 of expenses		14,955 87
Balance unexpended		\$592 60

Surrendered Estates.

Amount appropriated	\$23,600 00
Less amount transferred	19,100 00
	\$4,500 00

Received.

For Grading Assessments, as follows: —		
Cambridge-street District	\$2,927 13	
Cowperthwaite-street District	1,984 28	
Franklin-street District	2,246 53	
<i>Amounts carried forward</i>	\$7,159 94	\$4,500 00

<i>Amounts brought forward</i> . .	\$7,159 94	\$4,500 00
For Miller's-river District . .	853 90	
Sparks-street District . .	1,309 93	
Washington-street District . .	11,279 82	
Total, as per item No. 29 of receipts . . .	.	20,601 59
		\$25,101 59

Expended.

For estate corner Franklin and Hancock Street, surrendered by John Biggane, amt. awarded,	\$550 00	
Estate on Franklin Street, surrendered by Michael Loneragan, amount awarded . . .	657 20	
Estate on Franklin Street, surrendered by J. P. Perkins and A. W. Wildes, amt. awarded,	2,972 50	
Estate of J. Stacey Read, balance of mortgage thereon . .	85 56	
Estate on Western Avenue, surrendered by J. M. Robbins, amount awarded . . .	6,929 90	
Part of estate on McCabe and Jefferson Streets surrendered by T. Reardon	100 00	
Land in South Canal, surrendered by Emeline D. Makepeace, awarded	500 00	
Grading assessments refunded .	322 40	
Refunds for defective titles of sales	147 59	
Tax, city of Somerville . .	5 70	
Services of appraisers . .	1,151 00	
Witness fees	90 00	
Total, as per item No. 40 of expenses		13,511 85
Balance unexpended	.	\$11,589 74

*Surrendered Estates (Care and Repair).**Received.*

For rents of estates . . .	\$4,146 70	
Total, as per item No. 30 of receipts . . .		\$4,146 70

Expended.

For Blank-books . . .	\$5 00	
Hardware and tools . . .	40 42	
Labor, miscellaneous . . .	53 63	
Laying drains . . .	475 49	
Repairs, carpenter's work . . .	444 09	
Repairs, mason's work . . .	195 33	
Repairs, plumbing . . .	254 06	
Repairs, painting and glazing . . .	44 12	
Repairs, miscellaneous . . .	97 99	
Services of agent . . .	784 90	
Vaults, cleaning . . .	46 50	
Washing and cleaning . . .	4 00	
Water rates . . .	61 62	
Total, as per item No. 41 of expenses . . .		2,507 15
Balance unexpended . . .		<u>\$1,639 55</u>

*Tax, 1877, Corporation.**Received.*

For Amount received from Commonwealth, as per item No. 31 of receipts . . .	<u>\$21,052 29</u>
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*Tax, 1877, County.**Expended.*

For Amount paid county of Middlesex, as per item No. 43 of expenses . . .	<u>\$30,576 65</u>
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*Tax, 1877, National Bank.**Received.*

For Amount received from Commonwealth, as per item No. 32 of receipts	\$19,649 59
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Expended.

For Amount paid Commonwealth, as per item No. 42 of expenses	6,502 16
Balance in favor of city	<u>\$13,147 43</u>

*Tax, 1877, State.**Expended.*

For Amount paid Commonwealth, as per item No. 44 of expenses	<u>\$52,155 00</u>
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Taxes, 1874.

Amount uncollected Nov. 30, 1877	\$9,266 67
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Received.

For Amount collected from sundry persons, as per item No. 33 of receipts	2,070 75
Balance uncollected	<u>\$7,195 92</u>

Taxes, 1875.

Amount uncollected Nov. 30, 1877	\$13,520 63
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Received.

For Amount collected from sundry persons, as per item No. 34 of receipts	\$1,997 31
Balance uncollected	<u>\$11,523 32</u>

Taxes, 1876.

Amount uncollected Nov. 30, 1877 . . . \$75,433 15

Received.

For Amount collected from sundry persons, as per
Item No. 35 of receipts 60,502 04

Balance uncollected \$14,931 11

Taxes, 1877.

Amount uncollected Nov. 30, 1877 . . . \$153,891 81

Received.

For Amount collected from sundry persons, as per
Item No. 36 of receipts 123,942 67

Balance uncollected \$29,949 14

Taxes, 1878.

Amount assessed, City tax . . .	\$863,896 44	
State tax . . .	34,770 00	
County tax . . .	25,116 52	
	<u> </u>	923,782 96

Received.

For Amount collected from sundry persons, as per
Item No. 37 of receipts 796,043 10

Balance uncollected \$127,739 86

Water-Works (Construction).

Amount appropriated \$16 000 00

Expended.

For Boxes, gate, and meter . . .	\$84 47	
Castings	63 98	
Coal	11 80	
	<u> </u>	
Amounts carried forward . . .	\$160 25	<u>\$16,000 00</u>

<i>Amounts brought forward</i>	\$160 25	\$16,000 00
For Drinking-fountain	248 00	
Dam at Wellington Brook	594 00	
Fence	21 44	
Freight and cartage	196 47	
Gates	48 45	
Gauge	8 00	
Harness, repairs of	9 70	
Hydrants	322 22	
Iron pipe	2,621 25	
Labor, as per pay-roll	2,318 37	
Lead	433 56	
Land-damages	3,023 26	
Legal services	600 00	
Locating gates	90 00	
Lumber	3 01	
Meter	515 00	
Mason's work	21 33	
Motor	35 50	
Packing and waste	57 75	
Painting	10 00	
Paving	19 67	
Registers	92 00	
Stable	715 00	
Tools	143 50	
Trough, granite	56 20	
Valves	388 62	
Total, as per item No. 45 of expenses		12,752 55
Balance unexpended		\$3,247 45

Water-Works (Maintenance).

Amount appropriated	\$3,440 00
Add amount transferred	22,300 00
<i>Amount carried forward</i>	\$25,740 00

Amount brought forward \$25,740 00

Expended.

For Advertising	\$18 75
Analysis of water	50 00
Auditing accounts	75 00
Brick	100 50
Boat, repairs of	20 00
Carpet, cleaning	12 50
Car tickets and fares	98 90
Castings	398 48
Cement	508 60
Charcoal-dust	33 12
Chronograph, repairs of	3 00
Clay	127 12
Coal	1,983 65
Dial-vane	28 81
Directories	7 50
Entering sewer	24 87
Extra labor	164 17
Grass-seed	10 33
Gravel and sand	478 33
Hardware and tools	321 44
Harnesses, repairs of	39 00
Hay, grain, and straw	294 31
Horse hire and keeping	370 44
Horse-shoeing	85 09
Hydrants	66 00
Labor, as per pay-roll	8,557 70
Legal advice	200 00
Lumber	329 81
Mason's work	285 20
Matting	37 30
Oil	105 32
Packing and waste	45 98
Painting	144 66
Pipe, boxing	227 71
Plugs	25 74
Plans and surveys	52 32

<i>Amounts carried forward</i>	\$15,331 65	\$25,740 00
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<i>Amounts brought forward</i>	\$15,331 65	\$25,740 00
For Plumbing	44 09	
Printing	85 12	
Reading gauges	107 00	
Rent of office	400 00	
Rent of shop	200 00	
Rent of wharf	250 00	
Repairs of meters and gauges	237 15	
Repairs at reservoir	37 70	
Repairs of tools and machinery	358 19	
Repairs of house at pipe-yard	72 76	
Repairs of reservoir walls	621 82	
Repairs, general	96 51	
Repairs of wagons and carts	359 06	
Seals and fittings	68 83	
Services of H. Nevons, Supt.	1,950 00	
Services of J. W. Cotton, Registrar	2,000 00	
Services of J. A. Jacobs, Clerk	216 66	
Services of assistants in office	899 00	
Services of inspectors	1,295 50	
Stenographer, services of	9 00	
Stationery and blank-books	225 21	
Teaming and expressage	118 93	
Telephone, lease of	40 00	
Tracing leak	4 50	
Valvoline	160 38	
Witness fees	40 00	
Total, as per item No. 46 of expenses		25,229 06
Balance unexpended		<u>\$510 94</u>

*Water-Works (Rates, Fines, &c.).**Received.*

For rates, fines, &c., as per item No. 38 of receipts, ...	\$159,894 74
Less amount transferred	157,780 00
<i>Amount carried forward</i>	<u>\$2,114 74</u>

<i>Amount brought forward</i>	.	.	.	.	\$2,114 74
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Expended.

For Water rates refunded as per item No. 47 of expenses	.	.	.	.	.	994 24
Balance unexpended.	.	.	.	.	.	<u>\$1,120 50</u>

*Water-Works (Supplies).**Received.*

For Supply pipes and fittings as per item No. 39 of receipts.	.	.	.	.	.	\$3,784 89
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Expended.

For Extra labor	.	.	.	.	\$1 05
India ink	.	.	.	.	4 08
Labor, as per pay-roll	.	.			818 82
Meters	.	.	.	.	35 00
Pipes and fittings	.	.	.		892 49
Refund for duplicate payment.					3 35
Total, as per item No. 48 of expenses	.	.			<u>1,754 79</u>
Balance unexpended.	.	.	.	.	<u>\$2,030 10</u>

REPORT
OF THE
CITY TREASURER.

OFFICE OF THE CITY TREASURER, CAMBRIDGE, DEC, 1, 1878.

TO THE HONORABLE CITY COUNCIL:—

The undersigned herewith presents the annual account of receipts and payments in the City Treasury Department for the year ending Nov. 30, 1878, from which it appears that the

Cash in the treasury Nov. 30, 1877, was . . .	\$879 16
Received during the year ending Nov. 30, 1878 .	1,780,332 42
Total	<u>\$1,781,211 58</u>
Payments during the year	1,746,341 34
Leaving balance in the treasury, Nov. 30, 1878 .	<u>\$34,870 24</u>
Deducting <i>unpaid drafts</i> , as per Auditor's Report,	3,235 77
there remains a balance, as per Auditor's ledger of	<u><u>\$31,634 47</u></u>

The account current, showing the payments and receipts for the different department accounts, is hereto appended.

Respectfully submitted,

WM. W. DALLINGER, *City Treasurer.*

CITY OF CAMBRIDGE IN ACCOUNT CURRENT FROM DEC. 1, 1877, TO
Dr.

No.	To authorized payments, charged to City Accounts as follows:—	
1	Abatements and discounts	\$51,974 90
2	Bridges	6,697 55
3	Bridges (West Boston, Canal, and Prison Point)	5,810 27
4	Cemeteries	10,360 03
5	City debt	20,000 00
6	Dana Library	5,999 92
7	Engineering	6,245 31
8	Fire-department	59,820 61
9	Free dispensary	1,000 00
10	Health-department	1,332 43
11	Incidental expenses	27,491 07
12	Interest	203,426 32
13	Interest on water loan	89,982 00
14	Lighting streets	19,817 78
15	Loan, funded (city)	7,500 00
16	Loan, temporary	445,000 00
17	Loan, funded (water)	100 00
18	Pauper-department	20,794 58
19	Pauper-department (Almshouse)	16,534 19
20	Pauper-department (House offal)	5,861 37
21	Police-department	65,334 94
22	Salaries	22,969 69
23	School-department (Drawing schools)	687 09
24	School-department (Evening schools)	3,546 69
25	School-department (Incidental expenses)	4,932 88
26	School-department (Salaries)	133,491 20
27	School-department (Text-books and stationery)	3,136 64
28	School-houses (Care and repair)	22,997 09
29	Sewers (Construction)	5,758 72
30	Sewers (Maintenance)	3,781 47
31	Shade-trees and public grounds	3,491 54
32	Sinking-funds (city)	164,865 00
33	Sinking-fund of water-works	45,480 00
34	State aid	26,314 95
35	Stationery and printing	3,626 67
36	Street-department (Construction)	1,904 82
37	Street-department (Paving)	6,987 30
38	Street-department (Repairs)	60,771 14
39	Street-department (Watering)	14,755 62
40	Surrendered estates	13,511 85
41	Surrendered estates (Care and repairs)	2,495 33
42	Tax, national bank (State account)	6,502 16
43	Tax, county	30,576 65
44	Tax, state	52,155 00
45	Water-works (Construction)	12,752 55
46	Water-works (Maintenance)	25,129 65
47	Water-works (Rates, fines, &c.)	881 58
48	Water-works (Supplies)	1,754 79
	Total Payments	\$1,746,341 34
	Balance Cash in Treasury Nov. 30, 1878	34,870 24
		<u>\$1,781,211 58</u>

NOV. 30, 1878, WITH WILLIAM W. DALLINGER, CITY TREASURER.

Cr.

No.	By cash received and credited to City Accounts, as follows:—	
1	Bridges	\$5 00
2	Bridges (West Boston, Canal, and Prison Point)	58 40
3	Cemeteries	10,511 50
4	Cemetery Fund	300 00
5	Dana Library	3,015 59
6	Fire-department	157 16
7	Incidental expenses	27,363 85
8	Interest	12,978 64
9	Lighting streets	41 50
10	Loan, temporary	445,000 00
11	Loan, funded water	12,500 00
12	Pauper-department	4,037 07
13	Pauper-department (Alms-house)	2,723 78
14	Pauper-department (House offal)	4,456 60
15	Pike, James	1,500 00
16	Police-department	3,960 66
17	School-department (Drawing schools)	22 20
18	School-department (Salaries)	1,573 43
19	School-houses (Care and repairs)	7 97
20	Sewers (Construction)	2,457 54
21	Shade-trees and public grounds	12 14
22	Sinking-funds, Commissioners of	7,500 00
23	Sinking-funds (Water-works), Trustees of	300 00
24	State aid	17,000 00
25	Street-department (Construction)	1,050 00
26	Street-department (Paving)	95 10
27	Street-department (Repairs)	470 15
28	Street-department (Watering)	7,548 47
29	Surrendered estates	20,601 59
30	Surrendered estates (Care and repairs)	4,146 70
31	Tax corporation	21,052 29
32	Tax, national bank (State account)	19,649 59
33	Taxes of 1874	2,070 75
34	Taxes of 1875	1,997 31
35	Taxes of 1876	60,502 04
36	Taxes of 1877	123,942 67
37	Taxes of 1878	796,043 10
38	Water-works (Rates, fines, &c.)	159,894 74
39	Water-works (Supplies)	3,784 89
Total Receipts		\$1,780,332 42
Cash in the Treasury, Dec. 1, 1877		879 16
		\$1,781,211 58

WM. W. DALLINGER, *City Treasurer.*

REPORT

OF THE

COMMISSIONERS OF THE SINKING-FUNDS.

TO THE HONORABLE THE CITY COUNCIL:—

The undersigned, Commissioners of the Sinking-Funds of the City, in compliance with sect. 8 of an ordinance in relation to sinking-funds, passed Dec. 22, 1875, herewith respectfully submit their third Annual Report, showing the present condition of the funds to be as follows, viz.:—

Amount of the funds Dec. 1, 1877	.	.	.	\$643,134 30
Received from the city under the ordinance relating to the sinking-funds, passed Dec. 22, 1875.	.	.	.	164,865 00
Received interest on the funds for the year	.	.	.	38,338 53
Total assets for the year	.	.	.	\$846,337 83
Less amount paid city debt due Sept. 10, 1877	.	.	.	\$500 00
Less amount paid city debt due July 1, 1878	.	.	.	7,000 00
Paid city of Cambridge interest on amounts advanced April 27, July 1 and 12	.	.	.	1,134 25
Paid accrued interest on bonds purchased	.	.	.	605 78
<i>Amounts carried forward</i>	.	.	.	\$9,240 03 \$846,337 83

<i>Amounts brought forward</i>	.	.	\$9,240 03	\$846,337 38
Paid premium on municipal bonds purchased	.	.	3,325 00	
Paid premium on U. S. government bonds purchased	.	.	5,073 75	
				\$17,638 78
Total amount of funds, Dec. 1, 1878	.	.	\$828,699 05	
Accrued interest on funds Dec. 1, 1878	.	.	14,632 96	
Actual value of funds Dec. 1, 1878	.	.	\$843,332 01	
Said fund is invested as follows, viz.:—				
Bonds of the city of Cambridge (at par)	.	.	\$525,200 00	
Bond of the city of Cambridge registered (at par)	.	.	120,000 00	
Bonds of the city of Chelsea (at par)	.	.	19,000 00	
Bond of the town of Winchester (at par)	.	.	5,000 00	
Bond of the town of Arlington (at par)	.	.	6,000 00	
Notes of the town of Woburn (at par)	.	.	20,000 00	
U. S. government $4\frac{1}{2}$ registered bonds	.	.	123,000 00	
Notes secured by mortgage	.	.	10,069 41	
Cash on hand	.	.	429 64	
			\$828,699 05	

During the past year, \$7,500 of the city debt have been paid, and the funds have increased \$185,564.75; making a total of \$828,699.05, or more than enough to pay all of the city debt maturing until July 1, 1883 (\$819,000). Although we have been obliged to pay a premium for proper securities for investment of the fund, we have charged off all premium paid; and the fund stands charged with all its securities, only at their par. Should an opportunity offer to purchase our own bonds of short dates, these securities can be sold, and will realize a large portion of the premium paid. The Commissioners would again remind the City Council, that it is not possible to make satisfactory investments for the fund at present, to earn more than four and a half per cent interest; and, as the amount paid to

the Commissioners is based upon a six per cent investment, a larger sum will be required, to enable the fund to pay the entire debt at maturity.

CHAS. H. SAUNDERS,	} <i>Commissioners of the Sinking-Funds of the City.</i>
ROBT. DOUGLASS,	
JOHN M. TYLER,	
K. S. CHAFFEE,	
JOS. A. HOLMES,	
FRANK A. ALLEN,	

CAMBRIDGE, Dec. 18, 1878.

REPORT

OF THE

TRUSTEES OF THE SINKING-FUND OF THE CAMBRIDGE WATER-WORKS.

THE Trustees of the Sinking-Fund of the Cambridge Water-works respectfully submit the following Report:—

Amount of the fund, June 30, 1877	\$232,734 13
Received from the City of Cambridge under a provision of the ordinance passed Oct. 4, 1876, the same being three per cent on amount of outstanding water-loan bonds	45,480 00
Received interest on investments	20,571 40
	\$298,785 53
Paid water-loan bond due May 1, 1875, but not presented for pay- ment until March 8, 1878	\$100 00
Paid into the city treasury for the payment when presented of two outstanding bonds (of \$100 each) due May 1, 1875	200 00
Paid accrued interest on bonds pur- chased for investment during the year	1,151 82
Paid premium on bonds purchased for investment during the year	659 50
Premium account of previous years now charged off	4,718 75
	6,830 07
Amount of the fund Nov. 30, 1878, all securities at par	\$291,955 46

As all our city accounts are by ordinance made up to Nov. 30 of each year, the Trustees have thought it best to make this fund up to the same date: the above statement therefore comprises the transactions of eighteen months.

The amount of the fund as given above is accounted for by the following list of investments comprising the same, viz.:—

Cambridge water-loan bonds at par	.	.	.	\$207,900 00
“ low-land loan “ “	.	.	.	3,000 00
City of Providence “ “	.	.	.	47,000 00
“ “ Fall River “ “	.	.	.	2,000 00
“ “ Charlestown (Boston) bonds at par	.	.	.	1,000 00
U. S. government four per cent “ “	.	.	.	31,000 00
Cash on hand	.	.	.	55 46
Amount of the fund as per Auditor's ledger	.	.	.	\$291,955 46
Adding <i>accrued interest</i> on the above, viz.	.	.	.	4,334 25
the VALUE of the fund Nov. 30, 1878, is	.	.	.	\$296,289 71

Respectfully submitted,

SAM'L L. MONTAGUE,
GEO. S. SAUNDERS,
WM. W. DALLINGER,

Trustees of the Sinking-Fund of the Cambridge Water-Works.

REPORT

OF THE

JOINT STANDING COMMITTEE ON PUBLIC PROPERTY.

THE Joint Standing Committee on Public Property, in making its Annual Report for the year which closed Nov. 30, 1878, has to say:—

That in performing the duties which have devolved upon it, in the care, maintenance, and repair of the many and various descriptions of public property owned by and under the control of the city, it has endeavored to carry out as literally as possible the suggestions of his Honor the Mayor, in his inaugural address made at the beginning of the year just closed; namely, to exercise “the same economy in the expenditure of public funds, that we as individuals are compelled to exercise in private matters.” The ordinary expenses have been less than for many preceding years.

Public Squares.

In the matter of the care of public squares, on the decease of the late George W. White, Esq., who for several years was employed as “city forester,” at an annual salary which during the year 1877 was fixed at \$900, the Committee decided not to fill the vacancy by the appointment of a salaried official, but in lieu thereof itself to assume the duties previously performed by him, and to hire all employees by the day, to act under its especial supervision. Your Committee has, by so doing, succeeded in preserving the commons and public squares in as good condition certainly as heretofore, and at considerably less cost to the city.

The appropriation for public squares was . . .	\$4,500 00
The amount expended, which is \$2,136 less than the previous year, was	3,531 04
leaving a balance unexpended of	\$968 96

Trees have been planted in the enclosure at Fort Washington, but no further outlay has been made. If the City Council should order the erection of a new flag-staff, and a general repair of the grounds, an additional appropriation of \$600 would be required.

Schoolhouses.

The amount appropriated for care and repair and alterations of schoolhouses was	\$24,500 00
Amount expended	23,124 80
Balance unexpended	\$1,375 20

Of the above amount (\$23,124.80), the sum of \$5,226.32 was expended for fuel.

One large item of expense, not anticipated at the commencement of the year, was for alterations made during the summer vacation in the Washington Schoolhouse, amounting to \$2,644.35. This was made necessary at the time, by the imperative order of the State Inspector of Public Buildings, to make such changes in the construction of the interior entries and stairways as would render the building safe for occupation by the 550 to 600 scholars attending that school. This work has been done, and the house put in thorough repair throughout.

Another considerable expense was incurred in providing suitable drainage for several of the school-buildings, some of which your Committee found in a very offensive if not unhealthy condition. Your Committee would recommend the early attention of its successor to some other localities coming under its charge, which seem to require improvement in sanitary appliances.

Janitors.

In regard to the janitors employed in the care of the schoolhouses and public buildings, your Committee pursued the same course, substantially, as was adopted the year previous. Each janitor was called upon for an account of the tools and imple-

plements in his charge, belonging to the city; and the rules and regulations which were to govern his official relations were clearly defined. And your Committee is pleased to be able to state that there have been but few instances where the acts of any of the janitors have not merited unqualified approval; and that department has been conducted in a systematic, neat, and economical manner, generally satisfactory to the teachers and others occupying the public buildings.

Surrendered Estates.

In regard to the care and repair of surrendered estates, your Committee reports that it has continued to employ Mr. J. R. Fairbairn, as agent under its direction, to let and collect the rents of all the tenantable property, and to attend to the numerous details connected therewith.

During the year ending Nov. 30, 1878, he has collected for rents, and paid into the city treasury, the sum of	\$4,146 70
The cost of repairs was	\$1,449 80
Water rates	667 62
Cost of care and collecting	780 00
	2,897 42
Net income	\$1,249 28

A slight variation from the figures given in the statement of the Auditor will be noticed in the above; it being occasioned by the fact that the foregoing represents the bills approved by this Committee and its predecessor during the last financial year, while the Auditor's account is that of bills received by him during the same period, being those of a month earlier.

Your committee has made an agreement to sell an estate for \$3,000, but nothing as yet has been paid upon it.

For a detailed statement of the estates surrendered to the city previous to Dec. 1, 1877, reference may be had to the published city report of January, 1878, on pp. 68, 69, and 76 to 80, which it is unnecessary here to recapitulate, there having been no changes except as follows:—

Estate surrendered by Maurice Drinan, situate on Kinnaird Street, and land surrendered by Michael Lonergan, on Howard Street, reported as unsettled, have both been paid for during

the year 1878. The estate of John Murphy, reported as unsettled, was retained by him on condition of an adjustment of the grading assessment thereon, and the property thus passed to the original owner. The estates surrendered by Bancroft and Barrett are in the care of the city, but the amount to be paid therefor is as yet unadjudicated.

In the depressed condition of real estate, at the present time, your Committee has deemed it advisable not to take any unusual measures to attempt forced sales, considering it to be the better policy to wait quietly until a demand for the property may appear, as the temporary disadvantage from loss of interest and taxes is less than would result from an opposite course.

The following is a

SCHEDULE OF PROPERTY

owned by the city at the close of the year 1878, all of which is under the charge of this Committee, except such as is specially noted.

Almshouse Building.

Foot of Tannery Street, Ward Five. Also 12.688 acres of land in Cambridge, and 18.870 acres of land in Somerville. Also stone ledge located on Almshouse land. (In charge of Board of Overseers of the Poor.)

Cemeteries.

Cambridge Cemetery. Foot of Coolidge Avenue, containing 40.8129 acres of land. (In charge of Board of Commissioners of Cambridge Cemetery.)

Burial Ground. Garden Street, junction North Avenue, containing 77,452 square feet of land.

Commons and Public Squares.

Cambridge Common. Garden Street, North Avenue, and Waterhouse Street. Area about 359,936 square feet.

Public Square. Between Waterhouse Street and North Avenue. Area about 13,112 square feet.

Public Square. Garden and Chauncy Streets, and Concord Avenue. Area about 3,337 square feet.

Public Square. Between Waterhouse Street and North Avenue. Contents about 340 square feet.

Public Square. Between Holmes Place and Cambridge Street. Contents about 15,664 square feet.

Public Square. North Avenue, corner of Kirkland Street, on south corner. Contents about 23,243 square feet.

Public Square. North Avenue, corner of Kirkland Street, on north corner. Contents about 32,080 square feet.

Common. Junction Broadway and Main Street. Contents about 1,539 square feet.

Common. Broadway, corner of Norfolk Street. Contents about 102,814 square feet.

Fort Washington. Waverley Street. Contents of land about 42,023 square feet.

Common. Junction of Pleasant and River Streets. Contents about 7,554 square feet.

Hastings Square. Brookline, Chestnut, and Henry Streets. Area about 30,000 feet.

Dana Square. Lake, Magazine, Lawrence, and Niagara Streets. Area about 33,543 square feet.

Winthrop Square. Brighton, Winthrop, and Mount Auburn Streets. Area about 11,802 square feet.

Public Square. In front of Universalist church, junction of Main and Front Streets. Area 1,800 feet.

City Lands.

Lot on Franklin, Auburn, and Sydney Streets, containing about 80,000 feet.

Lot on Auburn, Pilgrim, and Sydney Streets, containing about 84,732 feet, with house and shed thereon, owned by Water-works. (Leased to Cambridge Water-works.)

Lot on Sydney Street, east side, near Auburn Street, containing about 26,034 feet.

Lot on Cambridge, corner Portland Street, containing about 111,626 feet.

Lot, junction of Arrow and Main Streets, containing about 717 feet.

Lot, junction of Hampshire Street and Broadway, containing about 591 feet.

Lot on Sixth Street. East, west, and rear lots on South Dock and South Canal. About 9,546 square feet.

Gravel Pit in Belmont, Concord Avenue, containing about 471,148 square feet. (In charge of Committee on Roads and Bridges.)

City Buildings.

Ward One Building, Brattle Square, and land, containing about 13,066.5 square feet.

Ward Four Building, junction Western Avenue and Green Street, and about 25,765 square feet of land.

City Hall, Main Street, corner Pleasant Street, and about 8,914 square feet of land.

City Stables, Norfolk, Hampshire, and Tremont Streets, and about 51,280 square feet of land. (In charge of Committee on Roads and Bridges.)

Engine-Houses.

House No. 1, Eliot Square, corner Mount Auburn Street, and land, about 16,146.5 feet.

House No. 2, Main Street, near Winsor, and land, about 3,444 feet.

House No. 3, Gore and Fourth Streets, and land, about 6,969 feet.

House No. 4, North Avenue, near corner Russell Street, and land, about 2,872 feet.

House No. 5, Hampshire Street, corner Inman, and land, about 6,000 feet.

House, Old, junction Western Avenue and River Street, and land, about 2,035 feet (leased as a carpenter's shop).

Drinking-Fountains.

Fourteen Fountains for persons and animals.

Two Fountains for persons only, located in different parts of the city.

Schoolhouses.

Allston, Boardman Street, about 15,152 feet of land.

Agassiz, Oxford Street, corner Sacramento Street, about 19,707 feet of land.

Boardman, Winsor Street, corner School Street, about 10,018 feet of land.

Bridge, Pioneer Street, Lower Port, about 4,471 feet of land.

Dunster, Concord Avenue, near Sparks Street, and about 10,000 feet of land.

Dana, Centre Street, and about 14,317 feet of land.

Felton, Amory Street, corner Summer Street, and about 15,000 feet of land.

Gore, Gore Street, between Third and Fourth Streets, and about 9,900 feet of land.

Gannett, Columbia Street, between Lincoln and Cambridge Streets, and about 8,806 feet of land; also, schoolhouse lot adjoining, containing 10,000 feet.

Harvard (Grammar), Broadway, corner Inman Street, and about 20,678 feet of land.

Harvard (Primary), Harvard Street, near Prospect Street, and about 10,000 feet of land.

High School, Fayette Street, Antrim Street, and Broadway, and about 37,824 feet of land.

Holmes, Hilliard Street, and about 11,182 feet of land.

Mason, Front Street, corner Jennings Street, and about 10,000 feet of land.

Otis, Otis Street, between Fifth and Sixth Streets, and about 8,095 feet of land.

Putnam, Otis Street, corner Fourth Street, and about 10,000 feet of land.

Quincy, Mason Street, corner James Street, and about 10,000 feet of land.

Reed, Reed Street, Ward Five, about 12,000 feet of land.

Riverside, Putnam Avenue, Ward One, about 11,200 feet of land.

Sargent, Broadway, corner Winsor Street, about 9,546 feet of land.

Shepard, North Avenue, near Russell Street, about 14,807 feet of land.

Thorndike, Thorndike Street, corner of Sixth Street, about 10,000 feet of land.

Willard, Lake, Lawrence, and Niagara Streets, about 20,054 feet of land.

Webster, Upton Street, about 25,765 feet of land.

Wyman, Spruce Street, corner Groveland Street, about 15,000 feet of land.

Washington, Brattle Street, corner Farwell Place, about 14,789 feet of land.

Surrendered Estates.

These estates have been surrendered to the city under the provisions of the statutes relating to low-land filling.

This list gives by whom surrendered, and location of property.

Cambridge-street District.

Blanchard, Walter S. Jefferson Street. House and about 1,756 feet of land.

Donnelly, James, Heirs of. Hunting and Harding Streets. House and small barn, and about 4,031 feet of land.

Horigan, Jeremiah. Warren Street. Two houses and about 6,510 feet of land.

Langley, Samuel. Hunting and Harding Streets. About 1,678 feet of land on Hunting Street; house and about 1,521 feet of land, No. 47 Harding Street; house and about 1,442 feet of land, No. 45 Harding Street.

Madden, D. & H. A. Willow and Harding Streets. House and about 6,064 feet of land.

Nourse, Susan M. Porter and Jefferson Streets. House and about 1,683 feet of land, Porter Street; lot of land, 7,746 feet, Porter Street; lot of land, 11,202 feet, Porter and Jefferson Streets.

Rafferty, B. Cambridge and Jefferson Streets. Old building, and about 24,955 feet of land.

Taunton Savings Bank. Corner McCabe and Jefferson Streets. Block of three houses, and about 3,375 feet of land, McCabe and Jefferson Streets; block of two houses, and about 2,600 feet of land, McCabe Street.

Miller's-river District.

Dale, Thomas J. Rear of Winter Street. Three old buildings, and about 5,320 feet of land.

Davies, Benjamin F. Rear of Gore Street. Lot of land containing about 16,428 square feet. (Unadjusted.)

Moulton, H. & C. W. H. Rear of Gore Street. Lot of land containing about 17,575 square feet.

Tibbetts, Israel. Bridge Street. Lot of land containing about 3,765 feet. (Unadjusted.)

Cowperthwaite-street District.

Crane, Ann, Heirs of. Grant Street and DeWolf Street. Lot of land containing about 16,350 square feet.

Kneeland, Henry. Grant and Cowperthwaite Streets. House and about 4,000 feet of land on Cowperthwaite Street; lot of land, 4,000 feet, on Grant Street.

Winthrop, William, Heirs of. Athens Street. Lot of land, west side, 6,750 feet; lot of land, east side, 20,360 feet.

Sparks-street District.

Bancroft, George. Estates on Mount Auburn and Willard Streets. Double house, 185 and 187 Mount Auburn Street, and about 3,360 feet of land; double house, 197 and 199 Mount Auburn Street, and about 2,870 feet of land; double house, 31 and 33 Willard Street, and about 3,080 feet of land; double house, 35 and 37 Willard Street, and about 3,080 feet of land; double cottage, 4 and 6 Dinsmore Court, and about 1,613 feet of land; double cottage, 8 and 10 Dinsmore Court, and about 1,613 feet of land.

Bancroft, George. Dinsmore Court. Double cottage, Nos. 12 and 14, and about 1,613 feet of land; double cottage, Nos. 13 and 15, and about 1,613 feet of land.

Washington-street District, South Dock and South Canal.

Bent Heirs. Dock and Sixth Streets; east lot containing 5,224 feet; west lot containing 7,699 feet; rear lot containing 29,482 feet.

Hunt, Fanny E. Harvard Street, north side, easterly of the estate of Bridget Manning; lot containing about 6,900 feet.

Franklin-street District.

Ahern, John. Rear Franklin, between Franklin and Green Streets. Two houses and about 2,442 feet of land.

Brassill, Daniel C. 29 Franklin Street. House and 1,920 feet of land.

Biggin, John. Franklin Street. Lot of land containing about 3,010 square feet.

Chamberlain, N. & G. D. Green Street, near Vernon. Double house and about 4,000 feet of land; lot of land opposite Vernon Street, containing 5,195 feet.

Drinan, Maurice. Kinnaird Street. Lot of land about 3,875 feet.

Daily, Cornelius. Hancock Street, near Green. Two houses, one unfinished, and about 4,130 feet of land.

Eagan, Martin. Kinnaird Street. Single house and about 2,500 feet of land; double house and about 4,520 feet of land.

Halloran, Mrs. Mary. 249 Franklin Street. Lot of land, about 3,042 feet.

Johnston, Thomas A. Green Street. Lot of land about 4,782 feet.

Kelley & McKinnon. Howard Street. Two lots of land, about 7,200 feet.

Loneragan, Michael. Howard Street. Lot of land, about 3,600 feet.

Lynch, Richard. Hayes Court. Double house and about 4,325 feet of land.

Murphy, Daniel. Hancock Street. Two houses and about 3,167 feet of land.

Mullens, Michael. Green Street. House and about 3,750 feet of land.

Murdock, Heirs of Hannah S. Land as per their plan. Western Avenue, new street from Western Avenue to Hews Street, lots 1 to 45 inclusive, containing 52,059 square feet; Franklin Street, lots Nos. 13, 14, 15, containing 11,500 square feet; Kinnaird Street, lots 16 to 21 inclusive, containing 22,240 square feet; Jay and Kinnaird Streets, lot 27 and about one-half of lot 26, contents 2,810 square feet. Total area, 88,609 square feet.

Murdock, Walter H. and Mary L. Land as per their plan. Hews Street and new street. Lots 16 to 26 inclusive (about one-half of latter lot); lots 29 to 45 inclusive,—in all 80,273 square feet.

McDonald, Martin. 105 Kinnaird Street. Large house, small house, and about 4,300 feet of land.

Mara, Thomas. Hayes Court. Double house and 4,255 feet of land.

O'Brien, Jeremiah. Hancock Street. House and store and 1,768 feet of land.

Quilter, Michael. 238 Franklin Street. House and about 2,752 feet of land.

Read, J. Stacey. Franklin Street. Lot of land containing 21,130 feet; lot of land containing 3,833½ feet. Kinnaird Street, lot of land containing 17,646 feet. Howard and Kinnaird Streets, lot of land containing 8,174 feet.

Perkins, John P. Bay Street. House and 1,880 feet of land.

Wildes, Asahel W. Corner Bay and Kinnaird Streets. House and 2,162 feet of land.

Sheehan, Mrs. Mary. Franklin Street. House and about 3,917 feet of land.

Shea, John. Soden and Franklin Streets. Two houses and 4,255 feet of land.

Thresher, J. M. Jay Street, westerly side, lots 28 to 37 inclusive, containing 38,313 square feet. Howard and Kinnaird Streets, easterly side, lots 38 to 46 inclusive, 32,454 square feet; westerly side Jay and southerly side Kinnaird Street, lots 58 to 63 inclusive, 20,380 square feet; two corner lots on westerly side of Howard Street, as per new plan, near Western Avenue, 29,884 square feet. Total, 121,031 square feet.

Walsh, Patrick. 150 Green Street. House and 4,777 feet of land.

Ready, Martin. 236 Franklin Street. House and about 4,300 feet of land.

Wharves and Landings.

Public Landing, foot of Bath Street, area unknown. *Public Landing*, south of Mount Auburn Street, area unknown.

City Wharf, Main Street, opposite Harvard Street. About 13,711 square feet.

Water-Works Property.

Old Engine-House, foot of Lakeview Avenue, and about 37,640 feet of land.

New Engine-House, opposite foot of Lexington Avenue, and about 43,560 feet of land.

Fresh Pond, lands bordering on, area unknown.

Little Pond, lands bordering on, area unknown.

Reservoir, Reservoir Street, corner High Street, and 84,168 feet of land. All the Water-works property is in charge of the Cambridge Water-Board.

Recapitulation of Areas.

Kind of Property.	Square Feet.	Acres.
Almshouse lands		31.558
Cemetery lands		42.591
Commons	678,787	or 15.583
City lands	313,246	
Occupied by city buildings	99,025½	
Occupied by schoolhouses	368,313	
Occupied by engine-houses	37,466½	
Surrendered estates : —	Square Feet.	
Cambridge-street District	74,563	
Miller's-river District	43,088	
Sparks-street District	18,842	
Cowperthwaite-street District	51,460	
Washington-street District	49,305	
Franklin-street District	456,520	
Total in all the districts	686,878	
Occupied by Water-works exclusive of lands bordering on Fresh and Little Ponds	165,368	
City Wharf	13,711	

Total Areas.

Included in Almshouse, Cemetery, and Common lands	89.732
Other lands occupied by city buildings, school and engine houses, and surren- dered estates	1,690,908 or 38.358
Total acres	128,190

Respectfully submitted,

JOSHUA G. GOOCH,	} Committee on Public Property.
BENJ'N F. DAVIES,	
CHARLES E. HANCOCK,	
MICHAEL CORCORAN,	

REPORT
OF
THE BOARD OF HEALTH.

OFFICE OF BOARD OF HEALTH, CITY HALL, Jan. 1, 1879.

TO THE HONORABLE THE CITY COUNCIL:—

IN compliance with the Ordinance in relation to the Board of Health, this Board respectfully transmits the following report of its receipts and expenditures during the financial year ending Nov. 30, 1878.

Amount of appropriation \$2,000 00

EXPENDITURES.

Analysis of water	\$100 00
Badge for health-officer	3 50
Burying animals	2 25
Car-tickets	35 00
Gravel and labor	105 40
Laying drains	30 00
Postal cards and stamps	16 25
Printing	25 75
Salary of health-officer	666 67
Salary of clerk of Board	73 87
Salary of city physician	225 00
Serving notices	3 00
Stationery	45 74

Total expenditures	\$1,332 43
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Balance unexpended	\$667 57
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By direction of the Board of Health,

JOHN McDUFFIE, *Clerk.*

TO THE CITY COUNCIL OF THE CITY OF CAMBRIDGE:—

In accordance with the provisions of the Statute of 1877, establishing boards of health, we herewith submit our report for the eleven months ending Dec. 31, 1878.

The Board of Health met for the first time Feb. 5, 1878, and elected D. H. Thurston chairman, and on Feb. 7 John McDuffie clerk. March 1, Dr. E. R. Cogswell was appointed Health-Officer at a salary of one thousand dollars per annum, entering at once upon the discharge of his duties by making a careful personal inspection of the whole city, noting for future reference the peculiarities of the various portions of the city, especially those districts where conditions unfavorable to health are most prevalent.

It is our intention that a thorough inspection of the city shall be made as often as possible. These inspections must be made during the cooler months of the year, for the complaints requiring immediate attention are so numerous in the summer months as to require the whole of the inspector's time.

The city ordinance in relation to health has been adopted as the regulations of the Board of Health.

By virtue of the powers conferred upon boards of health by the Statutes of the Commonwealth, we have issued a notice calling upon physicians and householders to notify this board at once of the occurrence of any case of small-pox, scarlet fever, diphtheria, or typhoid fever, in order that the people may be protected from the spreading of these diseases, so far as such measures of prevention are now understood.

The returns obtained under this order are, as will be seen by the accompanying table, for a part of the year only.

Between May 7 and Dec. 31 the number of cases of diphtheria reported was 173, of which 44 were fatal. Between July 31 and Dec. 31 there were 63 cases of scarlet fever with one death, and 27 cases of typhoid fever with 5 deaths.

On May 1 it became the duty of the Board of Health, by act of the Legislature of 1878, to approve certificates of death. This approval must be obtained before a permit to bury is issued by the City Clerk, and by means of it we have attempted to secure a more careful registration of the causes of death than has hitherto been in all cases possible.

By our records, there are but 24 deaths recorded for which a cause of death, more or less certain, is not given. The majority of these occurred before May 1.

We made an examination of parts of Alewife Brook, upon the occasion of a complaint made by the city of Somerville. As we reported to the City Council after making this examination, so do we still believe, that there is no remedy for the foul condition of the brook, save by the building of a parallel sewer of capacity sufficient to receive all the drainage now discharged by the Lakeview-avenue, Spruce-street, and North-avenue sewers. Nor should we, in relieving the brook from the foul matter deposited there by our own sewers, allow the town of Belmont to convey to the brook the very objectionable matter contained in the drainage of the hog-slaughtering establishment of the Niles Brothers.

As the town of Belmont must seek an outlet to tide-waters through the valley of Alewife Brook, and as the town of Arlington already needs sewers, which must either enter or follow the course of the same brook, for a part at least of the town, it is evident that the interests of all the towns would be best served by the joint construction of a main sewer of a capacity sufficient for the drainage of the whole valley; and this could not easily be done, except by a commission, with the authority of the State, to decide upon the kind of sewer, and equitably assess the cost of construction upon the interested towns. It does not seem possible to us that the difficulties in the way of a proper drainage of this valley can be met by the city of Cambridge alone.

The drain from the Messrs. Niles's building is the first serious contamination of the brook on its course from Fresh Pond, the Lakeview-avenue sewer receiving the drainage of not more than a dozen houses. The Spruce-street sewer is of more importance; and the North-avenue sewer introduces the peculiarly objectionable drainage of two slaughter-houses, one of them in the city of Somerville, in addition to a large amount of house-drainage.

We feel that we cannot be too urgent in calling your attention to the necessity for prompt action in this matter.

We find ourselves charged by the Act of the Legislature with the power to control the manner in which connections

shall be made between the drainage of houses and the public sewers.

We have thus far issued no order upon this subject; but find many very serious objections to the present city ordinance by which it is directed that no private drain shall be connected with the public sewers, except through an intervening catch-basin, so constructed as to prevent the escape of any thing but the liquid contents of the basin.

As a fact, we ascertain that a very large number of these catch-basins are not cleaned out until they become a nuisance too great to be endured; many are covered over with soil, and their position remains unknown until a smell or leak leads to a search, and by this time the earth has become so contaminated with filth as to be a standing danger to the health of the neighborhood.

On the other hand, even if the catch-basin be carefully built, and its contents removed at proper intervals of time, it still retains, near to the house, a large quantity of offensive and dangerous material.

While we ascertain that the larger cities, as a general rule, do not require private catch-basins, we still hesitate to make so great a change in the drainage system of this city, except after mature deliberation, and a consideration of the peculiar character of our own sewers.

Our attention has been called to the condition of the privy-vaults connected with several of the public schoolhouses. We find them in general offensive, and in several instances much more offensive than such places, when well constructed and properly cared for, ought to be. We are very strongly of the opinion that some form of water-closet should displace the vault wherever there is a convenient sewer.

The Shepard and Washington grammar schools both need immediate attention in this respect. A serious outbreak of diphtheria among the scholars of the Wyman primary school, which led to the closing of the school for several weeks, was associated with, if not caused by, a very offensive privy.

A report upon the sanitary condition of the schoolhouses, made to the School Committee, and published with the report for the year 1876, appears unfortunately to have called the

attention of the City Council to the bad sanitary condition of the schoolhouses with little result.

The recent building of a hog-slaughtering-house on the borders of Fresh Pond, and within fifty feet of the conduit connecting Fresh Pond with Little Pond and Wellington Brook, — a conduit admitting water freely from the surrounding soil, — has appeared, and still does appear to us, as a danger of most threatening character.

On Nov. 11 we made a formal statement of the facts in the case to the State Board of Health, and, in company with them, inspected the premises on Nov. 27.

Our only hope for relief from this nuisance lies with that Board.

In the alarm naturally excited among our citizens at this threatened pollution of our waters, many have thought a purer water than that furnished by the city could be obtained from wells now in existence or to be made. We felt so many doubts as to the possibility of obtaining a sufficiently pure water from the soil in the older part of the city, that we have caused an examination to be made of twenty samples taken from wells in various parts of the city, as will appear upon the accompanying table. These are wells in common use, and are believed by us to be a fair representation of the average condition of the wells of the city. For purposes of comparison, we copy from the Report of the Water Board for 1876 an average of eight analyses of Fresh-Pond water published in the City Document of 1877, at page 192.

It will be seen that, with three exceptions, Fresh Pond furnishes a much purer water than any of the twenty wells examined.

IN 100,000 PARTS.

LOCALITY.	Free Ammonia.	Albuminoid Ammonia.	Total Ammonia.	Inorganic Matter.	Organic and Volatile.	Total Solid Residue.
Fresh Pond, Average of eight analyses .	.0079	.0089	.0168	10.25	3.82	14.07

IN 100,000 PARTS.

Number.	LOCALITY.	Ward.	Free Am- monia.	Albuminoid Ammonia.	Total Am- monia.	Inorganic Matter.	Organic and Volatile.	Total Resi- due.	Nitrates.	Chlorine.	Sulphates.	
1	Broadway . .	2	.0010	.0032	.0042	14.0	4.50	18.5	..	..	..	....
2	West Street . .	2	.0010	.0100	.0110	24.5	4.50	29.0	..	..	..	....
3	Elm Street . .	2	.0010	.0060	.0070	22.5	3.00	25.5	..	..	..	....
4	Pleasant Street .	4	.0150	.0400	.0550	51.0	14.0	65.0	..	..	..	....
5	Second Street .	3	.0384	.0640	.1024	25.4	4.6	30.0	..	..	..	....
6	Jail-Yard . .	3	.0030	.0060	.0090	58.5	15.0	73.5	..	..	..	....
7	Main Street . .	4	.0030	.0030	.0060	20.4	5.5	25.9	..	..	..	....
8	Main Street . .	1	.0010	.0090	.0100	46.0	24.0	70.0	..	..	..	....
9	Sparks Street .	1	.0128	.0160	.0288	13.4	3.0	16.4	..	..	..	....
10	Donnell Street .	5	.0010	.0090	.0100	38.0	6.5	44.5	..	..	..	....
11	Botanic Garden .	5	.0030	.0030	.0060	6.5	2.0	8.5	..	..	..	Good.
12	Franklin Street .	4	.0010	.0060	.0070	61.0	9.0	70.0	..	..	..	....
13	Dublin Street .	5	.0000	.0030	.0030	18.0	12.0	30.0	..	..	..	....
14	North Avenue .	5	.0000	.0030	.0030	12.0	2.5	14.5	..	..	..	Good.
15	Magazine Street .	4	.0010	.0060	.0070	41.0	5.5	46.5	..	..	..	....
16	Clay Street . .	5	.0031	.0062	.0093	51.0	4.0	55.0	..	..	..	....
17	Spruce Street .	5	.0060	.0060	.0120	38.0	10.0	48.0	..	..	..	....
18	Fifth Street . .	3	.0060	.0090	.0150	54.0	45.0	89.0	..	..	..	....
19	Kirkland Place .	1	.0092	.0060	.0152	6.5	2.0	8.5	tr.	..	..	Good.
20	Brattle Street .	1	.0030	.0090	.0120	57.0	17.5	74.5	..	..	..	....

The following figures will show the work actually done in inspecting and abating nuisances : —

MARCH 1, 1878, TO DEC. 31, 1878.

Vaults emptied ¹	.	.	.	.	.	.	.	.	.	.	.	206
Vaults repaired	.	.	.	.	.	.	.	.	.	.	.	5
Cesspools emptied ¹	.	.	.	.	.	.	.	.	.	.	.	3
Cesspools built .	.	.	.	.	.	.	.	.	.	.	.	4
Stagnant water on land	.	.	.	.	.	.	.	.	.	.	.	14
Stagnant water in cellars	.	.	.	.	.	.	.	.	.	.	.	2
Dead animals buried .	.	.	.	.	.	.	.	.	.	.	.	25

¹ This does not include any that were cleansed voluntarily by the owners.

Defective house-drainage	33
Houses connected with sewers	18
Filthy cow-stables	2
Filthy yards	9
Accumulated garbage removed	8
Tenement ordered to be vacated	1
Offensive trade	1
Miscellaneous	3
Total	334

Inspections were made of every estate in some of the most thickly settled districts; and the records show that 144 other places were specially examined in consequence of complaints made at the office, or of reports of the police department.

Under the law of the State, two persons taking infants to board have made returns to the Board of Health, and their establishments have been inspected by the Health-Officer.

At the request of the boards of health of Boston and Somerville, 36 men have been recommended for licenses as grease-collectors in those cities.

Notices of all cases of diphtheria and scarlet fever reported to the Board have been sent immediately to the truant-officers, in order that the attendance at school of children from houses where these diseases exist might be prevented.

The tables appended should be read in connection with the statement of the sanitary condition of Cambridge, published by the State Board of Health in the report of the year 1878, and written by Dr. E. R. Cogswell.

We have had in mind through the year the very valuable suggestions of this report, and have endeavored to remove the influences dangerous to health therein set forth.

D. H. THURSTON, } *Board*
 GEORGE F. PIPER, } *of*
 H. P. WALCOTT, } *Health.*

Causes of Death in 1878:

CLASSIFIED ACCORDING TO THE NOSOLOGY ADOPTED IN THE REGISTRATION
REPORTS OF MASSACHUSETTS.

Measles	2
Scarlatina	1
Diphtheria	70
Croup	10
Quinsy	1
Whooping-cough	3
Typhoid Fever	9
Erysipelas	8
Puerperal Fever	2
Dysentery	43
Diarrhœa	21
Cholera Infantum	84
Remittent Fever	1
Cerebro-spinal Meningitis	2
Hydrophobia	1
Privation	2
Alcoholism	3
Thrush	3
Dropsy and Anœmia	9
Cancer	25
Consumption	163
Hydrocephalus	19
Meningitis	7
Apoplexy	17
Paralysis	20
Insanity	5
Epilepsy	5
Tetanus	1
Convulsions	33

Brain Diseases	22
Pericarditis	4
Aneurism	1
Heart Diseases	35
Laryngitis	1
Bronchitis	20
Pleurisy	3
Pneumonia	68
Asthma	3
Lung Diseases	9
Gastritis	3
Enteritis	7
Typhilitis	1
Peritonitis	8
Ascites	1
Hernia	3
Ileus	2
Stomach Diseases	3
Liver Disease	6
Nephritis	8
Bright's Disease	13
Cystitis	4
Kidney Disease	3
Disease of Uterus	2
Disease of Hip-joint	1
Phlegmon	3
Skin Disease	1
Stillborn	57
Premature and Infantile Debility	27
Cyanosis	2
Other Malformations	3
Teething	2
Childbirth	7

Old Age	23
Atrophy and Debility	33
Accident	16
Sunstroke	1
Drowning	8
Homicide	1
Suicide	2
Unknown	24
	1011

The following table shows the number of deaths from certain diseases for a series of years :—

DISEASE.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
Small Pox	35	31	...	...	...	...	...
Measles	8	5	5	13	...	...	2
Scarlet Fever	26	21	110	108	53	18	1
Diphtheria	5	5	13	40	94	78	70
Croup	6	8	5	16	9	11	10
Whooping-cough	22	10	21	8	6	15	3
Typhoid Fever	33	19	21	15	19	13	9
Erysipelas	6	4	13	12	10	12	8
Dysentery	10	20	11	23	13	66	43
Diarrhœa	11	8	11	13	14	18	21
Cholera Infantum	166	106	123	113	64	88	84
Cerebro-spinal Meningitis	4	35	11	6	2	3	2
Consumption	150	144	154	140	127	145	163
Pneumonia	40	55	74	94	59	60	68

REPORT

OF THE

COMMISSIONERS OF THE CAMBRIDGE CEMETERY.

TO THE HONORABLE CITY COUNCIL OF CAMBRIDGE:—

THE Commissioners of the Cambridge Cemetery herewith respectfully submit their Twenty-fourth Annual Report for the year ending Nov. 30, 1878.

RECEIPTS FOR THE YEAR.

Cash received for Burial lots	.	.	\$5,408	18
Care of lots	.	.	2,334	24
Foundations	.	.	340	11
Top-dressing	.	.	39	50
Wood	.	.	35	87
Hay	.	.	111	85
Myrtle	.	.	83	00
Granite posts	.	.	532	50
Burial-fees	.	.	1,413	75
Brick graves	.	.	69	00
Interest on "perpetual lots"	.	.	93	50
Total receipts	.	.	.	.
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EXPENDITURES FOR THE YEAR.

Superintendent's salary	.	.	.	\$1,424	94	
Sundry workmen	.	.	.	5,874	03	
Foundation and erection of cannon on soldiers' lot	.	.	.	572	00	
<i>Amounts carried forward</i>	.	.		\$7,870	97	\$10,511 50

The amount required for the ensuing year is estimated at \$9,500; and the receipts will probably correspond with that amount.

The Commissioners take pleasure in commending the Superintendent, not only for the continued improved condition of the cemetery-grounds, but also for the courtesy manifested in the discharge of the duties of his office.

Respectfully submitted,

SAM'L L. MONTAGUE.
JOHN M. TYLER.
GEO. S. SAUNDERS.
GEO. T. GALE.
WILLIAM PAGE.

CAMBRIDGE, Nov. 30, 1878.

REPORT

OF THE

COMMITTEE ON SOLDIERS AND THEIR FAMILIES.

CITY OF CAMBRIDGE,
IN BOARD OF ALDERMEN, Jan. 1, 1879.

THE Joint Committee on Soldiers and their Families submits the following Report for the year ending Nov. 30, 1878.

The appropriation for State aid for the year ending	
Nov. 30, 1878, was	\$2,000
Amount received from State Treasurer	17,000
	\$19,000
Subsequently appropriated to meet the demands under	
the statute of 1878	12,000
Total	\$31,000

The return to the Auditor of the Commonwealth is for the year ending Dec. 31, 1878.

Cases in which aid has been granted during the year,	
under the old law	283
Number now on the list	271
Amount paid under the old law to Dec. 31, 1878	\$17,699 37
Amount claimed from the Commonwealth	15,321 87
Cases in which aid has been granted to "Indigent Soldiers	
and Sailors," under the statute of 1878	293
Cases now on the list	276
Amount paid under this law from May 17, 1878,* to	
Dec. 31, 1878	\$12,563 47

All of this is claimed from the Commonwealth, with the exception of \$26 paid in two cases of men enlisted in 1864 for 100 days. The State Auditor notified the committee too late, that such men were not credited to the quota of Massachusetts, their certificates from the Adjutant-General's office being in due form.

During the year Mr. E. W. Law has been employed under the direction of the Committee "to examine, rectify, and close the accounts of the city with the Commonwealth relating to State aid paid by said city since the year 1864."

This work has been prosecuted diligently; and the accounts will be closed as soon as the evidence procured by him can be discussed with the State Auditor. The result will not be known until early in the next year; but there is no doubt that the city has secured a considerable portion of the amount heretofore withheld.

Had the Auditor been able to go through the accounts of the city in a short time after they were presented in each year, the lack of evidence called for by him could in most cases have been easily supplied, or the case could have been dropped from the list.

With the experience now gained from the examination of these accounts, there will probably be but little discrepancy between the claims made and the amounts allowed by the Auditor.

Under the old State-aid law, certain sums have been annually paid to widows and orphans in necessitous circumstances, under authority of the law, but in excess of the amount reimbursed by the State.

Such payments have been allowed by the successive committees having charge of the State aid, and have been thought expedient by all who were acquainted with the facts.

The operation of the statute of 1878 has not been so satisfactory. In most of the cases the soldiers aided claim that their health was impaired in the service. Many of the applicants are men who are out of employment, owing to the present condition of business; and there are some among them who have become poor because they are indisposed to work, or have lost their health by their own misconduct. These last prefer to be supported by the public, rather than to support themselves;

and yet they are “poor and indigent,” within the meaning of the law.

Is there any reason why such men should be supported by the Commonwealth? They may even select the place where they will reside, and they may demand “full support.” The veteran who was disabled in the service of his country cannot receive so much as one who perhaps did little or nothing, and whose only claim is, that he is poor, as are thousands around him. If his poverty is not a consequence of his service, why should he be better cared for than his poor neighbor?

If the present law is allowed to remain, it is safe to assume that many of those who are now drawing aid under the statute of 1878 will never exert themselves to procure work or to assist themselves. The law should be repealed, or should be so changed as to render it more just to the public and less injurious to the recipients.

It is hardly possible to give an estimate of the amount which will be required in the next year.

The monthly payments under the old State-aid law	
amount to	\$1,491
Those under the statute of 1878, to	\$2,578

and new applications are daily made for assistance.

There is nothing to prevent those who are dissatisfied with what they receive or fail to receive elsewhere, from moving into Cambridge, and selecting this as the place in which they will be supported.

All of which is respectfully submitted.

BENJ'N F. DAVIES, JOSHUA G. GOOCH, E. T. NICHOLS, J. F. WILKINSON, MICHAEL CORCORAN, J. W. SMITH,	} Committee on Soldiers and their Families.
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REPORT

OF THE

OVERSEERS OF THE POOR.

CAMBRIDGE, Dec. 20, 1878.

TO THE HONORABLE THE CITY COUNCIL OF THE CITY OF CAMBRIDGE:

Gentlemen, — In accordance with custom, the Board of Overseers of the Poor, constituted by act of March 10, 1877, herewith respectfully submits its Second Annual Report.

In consideration of the changes in the system of aid by this act, the Board has deemed it important to present a more full and complete statement than usual; and has reported its doings in minute detail, giving in tabulated form the results of each department.

There are now on file at the office of the overseers, histories of the families of 1,486 applicants for aid, consisting of 4,509 persons. 659 histories have been taken within the past year, embracing 2,010 persons, 727 of whom are settled in Cambridge, and 1,283 have no claim upon this city.

The following is the number of paupers supported by the city during the past year: 236 in the Almshouse, 10 in the House of Correction, 6 in the State Workhouse, 2 in the State Industrial School, 7 in the State Reform School, and 50 in the Insane Hospitals. There have been 107 families aided who belonged to the State, 49 of these being State sick poor. 108 families belonging to other cities and towns have been assisted in this city. 81 families have been aided in other cities and towns, whose settlement is in Cambridge. 167 families belonging to Cambridge have received temporary aid in this city during the past year.

The main features of the present system, as distinct from the former, are, —

1st, The establishment of a central office where all applications for assistance are to be made to the secretary of the Board.

2d, The employment of a visitor to ascertain the positive need of all applicants, and to determine their settlement.

3d, The rendering of all aid to the poor at or from the Alms-house, except in cases of sickness, when open orders are given for their relief.

Application having been made to the secretary, his first duty is to send the visitor at once to ascertain the actual condition of the party applying; and, if it is found to be a case of distress, the immediate want is promptly relieved. The next duty is for the visitor to take the history of the applicant, and ascertain the facts whereby the settlement is determined.

If it is found that the settlement is in any other city or town, such town is notified at once by the secretary, and all aid rendered is at the cost of that town. If it is proved that there is no settlement, then the State is notified, and the aid rendered is charged to the State.

All cases are submitted to the Committee on Relief, for its approval. This committee meets every week during the winter, or as much oftener as necessity requires; and, after considering the facts gathered by the secretary and visitor, determines what shall be done in each case.

By the tables prepared for this Report it will be seen that pauperism in our city has steadily decreased during the past two years. This is mainly due to the new system.

Under the old system applications were made to any member of the Board of Overseers, and the aid was rendered by such member giving an open order upon the stores for their relief.

Through that system pauperism steadily increased until nearly 4,000 persons were receiving aid from the city. A large per cent of these, while able, had lost the honest pride of caring for themselves, and were quite willing to receive all that the city would bestow. Others, who did not belong to Cambridge, but whose settlement could not be readily ascertained, were charitably relieved by the overseers, when, could their history have been satisfactorily known, their support would have been collected from other cities or towns. For the same

reason a third class, who were chargeable to the State, received aid from our city.

It will be seen at once, that however faithful might be the Board of Overseers, and however desirous they might be that the poor should not suffer, nor the city be wronged, there were but two ways open to them. One was, to aid upon the statement of the applicant; and the other, to refuse to aid at all.

By refusing aid, the worthy poor who were entitled to receive it might be left to suffer; while, aiding, those who were capable of self-support might by false representations obtain it at the expense of the city.

Thus the advantages of the new system over the old, in securing more thorough investigation, and consequent discrimination, are made apparent.

By reference to the tables, the amount expended and received in each department will be seen, as well as the actual cost to the city, which has been as follows:—

Expenditures for outside aid	.	.	.	.	\$19,955 05
Receipts for outside aid	.	.	.	.	4,037 07
Making a total cost of					\$15,917 98
Expenditures for almshouse	.	.	.	.	\$14,506 87
Receipts for almshouse	.	.	.	.	1,055 52
Making a total cost of					\$13,451 35
Expenditures for farm and ledge	.	.	.	.	\$1,404 67
Receipts	.	.	.	.	1,668 26
Making a total excess of receipts					\$263 59
The aggregate expenditures for the above departments have been					\$35,866 59
The aggregate receipts for the same have been					6,760 85
Making a total cost to the city for support and maintenance of the poor					\$29,105 74

In addition to the above, the collection of house offal, which has been placed under the direction of the Overseers of the Poor, by an order passed by the City Council, March 5, 1862,

but in no way pertains to the maintenance of the poor, has resulted as follows:—

Expenditures	\$6,232 45
Receipts from sales	4,456 60
Cost of collection above receipts	<u>\$1,775 85</u>

Recapitulation.

The appropriation made by the City Council for the pauper department, almshouse, and collection of house offal, for the financial year commencing Dec. 1, 1877, was . . .	\$50,000 00
There have been expended	42,099 04
The receipts have been	<u>11,217 45</u>
Leaving a total cost to the city	\$30,881 59

Almshouse.

Total number of inmates during the year	236
Total number present Nov. 30, 1878	110
Average monthly number	115

Of the number present Nov. 30, 1878, 20 were sentenced by the court, 12 of these being children committed under the truant act.

The report of the Almshouse physician, who has rendered valuable service in this position for the past fifteen years, shows a satisfactory sanitary condition of the institution.

For a more detailed account of the Almshouse, in its various departments, we refer to the appended report of the warden, whose faithfulness in the care and management of his trust is with pleasure recognized by the Board of Overseers.

SAM'L L. MONTAGUE,	} Overseers of the Poor.
J. C. WELLINGTON,	
CHS. E. VAUGHAN,	
GEO. D. CHAMBERLAIN,	
SUMNER ALBEE,	
EZRA PARMENTER,	

TABLE OF EXPENDITURES.

BILLS APPROVED BY OVERSEERS OF POOR, DECEMBER, 1877, TO
DECEMBER, 1878.

MONTHS.	Outside Aid.	Almshouse.	Farm and Ledge.	House Offal.	Total.
1877.					
December . .	\$1,269 53	\$2,143 02	\$152 47	\$380 40	\$3,945 42
1878.					
January . . .	3,178 38	1,411 04	165 27	430 38	5,185 07
February . . .	1,114 26	964 50	101 62	685 78	2,866 16
March . . .	1,591 79	811 98	122 72	659 81	3,186 30
April . . .	3,038 99	1,451 40	129 02	580 01	5,199 42
May . . .	590 61	739 07	109 71	463 33	1,902 72
June . . .	518 24	898 76	103 50	525 68	2,046 18
July . . .	3,245 34	1,173 08	130 65	421 40	4,970 47
August . . .	652 30	778 97	101 00	477 30	2,009 57
September . .	956 08	691 33	88 65	483 86	2,219 92
October . . .	3,169 82	2,122 80	105 75	424 32	5,822 69
November . .	629 71	1,320 92	94 31	700 18	2,745 12
Total . .	\$19,955 05	\$14,506 87	\$1,404 67	\$6,232 45	\$42,099 04

TABLE OF RECEIPTS FROM DECEMBER, 1877, TO DECEMBER,
1878.

MONTHLY ACCOUNTS.	Outside Aid.	Almshouse Department.	Farm and Ledge.	House Offal.	Total.
1877.					
December . .	\$198 81	\$22 50	\$161 32	\$198 61	\$581 24
1878.					
January . . .	164 34	52 43	.....	506 63	723 40
February . . .	606 77	.....	25 00	211 85	843 62
March . . .	412 08	78 00	134 19	451 08	1,075 35
April . . .	106 38	16 50	.....	11 80	134 68
May . . .	286 81	29 57	139 82	732 39	1,188 59
June . . .	11 00	.....	234 36	180 76	426 12
July . . .	550 78	32 50	124 11	718 98	1,426 37
August . . .	651 83	.....	156 26	193 65	1,001 74
September . .	.....	.....	18 10	268 74	286 84
October . . .	100 61	74 79	425 85	733 96	1,335 21
November . .	947 66	749 23	249 25	248 15	2,194 29
Total . .	\$4,037 07	\$1,055 52	\$1,668 26	\$4,456 60	\$11,217 45

OUTSIDE AID DEPARTMENT — DEC. 1, 1877, TO DEC. 1, 1878.

MONTHLY ACCOUNTS OF 1878.	Salaries, Books, and Stationery.	Postage and Printing.	Medical At- tendance & Medicine.	Burials.	Fuel.	Groceries.	Boots and Shoes.	Transporta- tion and Travel.	Outside sup- port.	State Crimi- nal Paupers.	State Insane Hospitals.	House of Correction.	Miscellane- ous.	Total.
1877. December	\$260 91	.....	\$14 00	.....	\$146 25	\$520 12	\$137 05	.....	\$176 20	.....	.....	.....	\$15 00	\$1,269 53
1878. January	357 20	.....	49 83	.....	160 85	101 43	.....	\$60 00	355 94	\$124 00	\$1,924 22	.....	44 91	3,178 38
February	265 33	\$46 75	4 00	.....	171 46	174 10	.....	.....	61 50	.....	57 00	.....	334 12	1,114 26
March	317 74	10 75	11 00	.....	119 87	58 41	.....	68 00	965 52	.....	.....	\$24 30	16 20	1,591 79
April	267 70	.....	50 00	\$114 00	35 78	87 51	.....	.....	116 93	154 00	2,209 87	.....	3 20	3,038 99
May	264 42	.....	98 65	.....	12 19	129 50	.....	.....	69 80	.....	.....	.....	16 05	590 61
June	260 42	.....	45 00	24 00	15 13	85 29	.....	.....	104 40	.....	.....	.....	8 00	518 24
July	266 50	8 75	21 20	.....	3 75	95 35	.....	.....	595 01	196 00	2,034 78	.....	.....	3,245 34
August	290 00	.....	18 38	.....	.....	85 00	.....	.....	258 92	.....	.....	.....	.....	652 30
September	256 08	.....	38 35	80 00	.....	47 25	.....	.....	521 90	.....	.....	.....	12 50	956 08
October	339 72	50 25	32 75	.....	.....	81 00	48 90	264 60	36 37	306 00	1,925 00	.....	85 23	3,169 82
November	277 79	1 25	26 50	.....	33 65	139 98	.....	22 06	122 42	.....	.....	.....	6 06	629 71
Total	\$3,423 81	\$117 75	\$409 66	\$218 00	\$698 93	\$1,604 94	\$185 95	\$414 66	\$3,384 91	\$780 00	\$8,150 87	\$24 30	\$541 27	\$19,955 05

OUTSIDE AID DEPARTMENT.

MONTHLY ACCOUNTS.	Amount Ex- pended.	Amount Received.	Receipts above Expenditures.	Expenditures above Receipts.
1877.				
December	\$1,269 53	\$198 81	.....	\$1,070 72
1878.				
January	3,178 38	164 34	.....	3,014 04
February	1,114 26	606 77	.....	507 49
March	1,591 79	412 08	.....	1,179 71
April	3,038 99	106 38	.....	2,932 61
May	590 61	286 81	.....	303 80
June	518 24	11 00	.....	507 24
July	3,245 34	550 78	.....	2,694 56
August	652 30	651 83	.....	47
September	956 08	.....	.....	956 08
October	3,169 82	100 61	.....	3,069 21
November	629 71	947 66	\$317 95	.....
Total	\$19,955 05	\$4,037 07	\$317 95	\$16,235 93
Amount expended				\$19,955 05
Amount received				4,037 07
Net cost				\$15,917 98

ALMSHOUSE DEPARTMENT.

MONTHLY ACCOUNTS.	Groceries and Provisions.	Dry Goods.	Clothing.	Fuel.	Gas.	Water.	Hardware, Tools, &c.	Grain and Straw.	Horse-shoeing and Carriage work.	Medicines.	Salaries and Wages.	Repairs.	Stationery.	Lumber, &c.	Household Wares.	Ice.	Miscellaneous.	Total.
1877. Dec. .	\$626 00	....	\$5 40	\$959 05	....	....	\$4 00	....	....	....	\$322 00	\$135 38	....	....	\$46 50	....	\$44 69	\$2,143 02
1878. Jan. .	463 62	\$93 13	3 50	60 29	....	\$94 92	....	....	\$5 00	\$48 90	405 00	47 23	\$30 00	....	19 00	\$98 00	42 45	1,411 04
Feb. .	619 32	11 09	1 80	....	....	....	6 90	....	10 49	9 10	189 00	10 00	....	....	13 60	....	93 20	964 50
March.	293 97	30 75	....	....	\$158 34	....	23 56	....	1 50	6 35	224 66	48 50	....	....	1 00	....	23 35	811 98
April .	379 41	20 93	2 00	262 34	178 93	88 38	13 57	....	2 50	12 00	364 00	42 78	5 00	\$3 40	70	50 00	25 46	1,451 40
May .	245 73	154 27	108 00	19 72	....	....	2 00	\$4 38	6 25	44 43	118 00	5 50	4 49	....	1 80	....	24 50	739 07
June .	412 41	11 97	1 50	....	....	....	47 44	....	....	7 68	268 00	....	24 00	2 00	47 56	....	76 20	898 76
July .	628 71	....	9 00	....	18 27	....	3 55	....	....	1 50	374 00	80 52	2 25	39 78	....	....	15 50	1,173 08
Aug. .	434 58	22 32	....	....	....	15 00	....	117 00	1 50	....	118 00	24 75	2 75	7 17	4 75	....	31 15	778 97
Sept. .	331 62	93 18	....	....	....	....	....	....	75	5 49	193 00	5 20	21 25	1 70	21 54	....	17 60	691 33
Oct. .	621 93	21 17	151 30	608 22	34 80	....	53 47	....	....	48 52	324 00	....	....	21 83	30 81	....	206 75	2,122 80
Nov. .	775 33	49 31	135 00	....	....	92 05	....	....	1 25	....	118 00	26 98	5 00	....	....	....	118 00	1,320 92
Total .	\$5,832 63	\$508 12	\$417 50	\$1,909 62	\$390 34	\$290 35	\$154 49	\$121 38	\$29 24	\$183 97	\$3,017 66	\$426 84	\$94 74	\$75 88	\$187 26	\$148 00	\$718 85	\$14,506 87

CITY ALMSHOUSE DEPARTMENT.

MONTHLY ACCOUNTS.	Number of Paupers.	Total Expenditures.	Total Receipts.	Expenditures above Receipts.
1877.				
December . . .	113	\$2,143 02	\$22 50	\$2,120 52
1878.				
January	112	1,411 04	52 43	1,358 61
February	110	964 50	78 00	886 50
March	106	811 98	.....	811 98
April	110	1,451 40	16 50	1,434 90
May	108	739 07	29 57	709 50
June	114	898 76	.....	898 76
July	123	1,173 08	32 50	1,140 58
August	132	778 97	.....	778 97
September	123	691 33	.....	691 33
October	119	2,122 80	74 79	2,048 01
November	118	1,320 92	749 23	571 69
Total . . . .	.....	\$14,506 87	\$1,055 52	\$13,451 35
Amount expended				\$14,506 87
Amount received				1,055 52
Net cost				\$13,451 35

FARM AND LEDGE DEPARTMENT.

MONTHLY ACCOUNT.	Powder.	Wages on Ledge.	Wages on Farm.	Hardware.	Total.
1877.					
December	\$4 60	\$79 87	\$68 00	.....	\$152 47
1878.					
January	12 15	80 12	73 00	.....	165 27
February	3 75	64 37	33 50	.....	101 62
March	7 95	73 25	30 00	\$11 52	122 72
April	8 40	90 62	30 00	.....	129 02
May	8 40	71 31	30 00	.....	109 71
June . . . . .	.....	73 50	30 00	.....	103 50
July	8 40	92 25	30 00	.....	130 65
August . . . . .	.....	71 00	30 00	.....	101 00
September	8 40	50 25	30 00	.....	88 65
October	15 00	60 75	30 00	.....	105 75
November . . . . .	.....	64 31	30 00	.....	94 31
Total	\$77 05	\$871 60	\$444 50	\$11 52	\$1,404 67

FARM AND LEDGE DEPARTMENT.

MONTHLY ACCOUNTS.	Amount Expended.	Amount Received.	Receipts above Expenditures.	Expenditures above Receipts.
1877.				
December	\$152 47	\$161 32	\$8 85	.....
1878.				
January	165 27	.....	.....	\$165 27
February	101 62	25 00	.....	76 62
March	122 72	134 19	11 47	.....
April	129 02	.....	.....	129 02
May	109 71	139 82	30 11	.....
June	103 50	234 36	130 86	.....
July	130 65	124 11	.....	6 54
August	101 00	156 26	55 26	.....
September	88 65	18 10	.....	70 55
October	105 75	425 85	320 10	.....
November	94 31	249 25	154 94	.....
Total	\$1,404 67	\$1,668 26	\$711 59	\$448 00
Amount expended				\$1,404 67
Amount received				1,668 26
Excess of receipts				\$263 59

HOUSE-OF-FAL DEPARTMENT.

MONTHLY ACCOUNTS.	Wages.	Veterinary Services.	Grain, Hay, and Straw.	Blacksmith.	Repairs on Harness.	Lumber and Bricks.	Painting.	Hardware and Swill-Buckets.	Clothing.	Water.	Stationery.	Total.
1877.												
December	\$315 00	\$22 00	\$40 40	\$3 00	.....	.....	.....	.....	.....	.....	.....	\$380 40
1878.												
January	315 00	.....	30 16	34 62	\$40 60	\$10 00	.....	.....	.....	.....	.....	430 38
February	315 00	.....	242 29	34 16	.....	94 33	.....	.....	.....	.....	.....	685 78
March	315 00	.....	91 55	152 62	.....	.....	\$3 50	\$97 14	.....	.....	.....	659 81
April	315 00	.....	17 24	12 63	.....	.....	.....	235 14	.....	.....	.....	580 01
May	355 00	.....	100 26	8 07	.....	.....	.....	.....	.....	.....	.....	463 33
June	355 00	12 00	22 10	116 77	.....	.....	.....	19 81	.....	.....	.....	525 68
July	355 00	.....	.....	9 00	50 80	.....	.....	6 60	.....	.....	.....	421 40
August	430 00	.....	22 90	21 65	.....	.....	.....	.....	.....	.....	\$2 75	477 30
September	440 00	.....	.....	43 86	.....	.....	.....	.....	.....	.....	.....	483 86
October	385 00	6 00	33 32	.....	.....	.....	.....	.....	.....	.....	.....	424 32
November	355 00	.....	215 22	.....	.....	.....	.....	.....	21 38	108 58	.....	700 18
Total	\$4,250 00	\$40 00	\$815 44	\$436 38	\$91 40	\$104 33	\$3 50	\$358 69	\$21 38	\$108 58	\$2 75	\$6,232 45

HOUSE-OFFAL DEPARTMENT.

MONTHLY ACCOUNTS.	Amount Expended.	Amount of Receipts.	Receipts above Expenditures.	Expenditures above Receipts.
1877.				
December	\$380 40	\$198 61	.....	\$181 79
1878.				
January	430 38	506 63	\$76 25	.....
February	685 78	211 85	.....	473 93
March	659 81	451 08	.....	208 73
April	580 01	11 80	.....	568 21
May	463 33	732 39	269 06	.....
June	525 68	180 76	.....	344 92
July	421 40	718 98	297 58	.....
August	477 30	193 65	.....	283 65
September	483 86	268 74	.....	215 12
October	424 32	733 96	309 64	.....
November	700 18	248 15	.....	452 03
Total	\$6,232 45	\$4,456 60	\$952 53	\$2,728 38
Amount expended				\$6,232 45
Amount received				4,456 60
Net cost.				\$1,775 85

REPORT

OF

THE WARDEN OF THE ALMSHOUSE.

CAMBRIDGE, Dec. 1, 1878.

TO THE BOARD OF OVERSEERS OF THE POOR..

Gentlemen,—I have the honor to present the following Annual Report of the institution for the year ending Nov. 30, 1878.

The whole number of inmates during the year ending Nov. 30, 1878	.	.	.	.	.	.	.	236
On Overseers' permit	.	.	.	.	.	.	.	184
On Court sentence	.	.	.	.	.	.	.	52
Total number of inmates Nov. 30, 1878	.	.	.	.	.	.	.	110
Males	.	.	.	.	.	.	.	63
Females	.	.	.	.	.	.	.	47
Adults	.	.	.	.	.	.	.	74
Minors	.	.	.	.	.	.	.	36
Number of children attending school Nov. 30, 1878	.	.	.	.	.	.	.	34
Boys	.	.	.	.	.	.	.	28
Girls	.	.	.	.	.	.	.	6
On Overseers' permit	.	.	.	.	.	.	.	21
On Court sentence	.	.	.	.	.	.	.	13
Number of inmates Nov. 30, 1877	.	.	.	.	.	.	.	130
Males	.	.	.	.	.	.	.	72
Females	.	.	.	.	.	.	.	58
Adults	.	.	.	.	.	.	.	72
Minors	.	.	.	.	.	.	.	58

Number of children attending school Nov. 30, 1877,	45
Boys	35
Girls	10
On Overseers' permit	32
On Court sentence	13

Included in the total were 4 foundlings who were sent to the State institutions.

The following have been the products of the farm, with the estimated value of the same : —

800 bushels potatoes	\$720 00
50 bushels beets	35 00
35 bushels onions	24 00
130 bushels tomatoes	78 00
85 bushels green peas	42 00
70 bushels green beans	35 00
40 bushels rye	32 00
40 barrels green corn	40 00
10 barrels turnips	15 00
2½ tons carrots	50 00
8½ tons mangel-wurzels	119 00
25 tons hay	500 00
12 tons straw	240 00
2 tons squashes	80 00
1,200 bunches asparagus	180 00
6,000 heads cabbages	360 00
	\$2,550 00

I respectfully suggest the importance of a change in the house arrangements so as to make better accommodations for the sick and insane, of which latter class there are 12 at present. The house needs outside repairs, which should be attended to as soon as practicable.

I again renew the recommendation made in my annual report of 1877, that a change be made in the act whereby the almshouse was made a workhouse, so that it may apply only to those having a legal settlement in Cambridge.

Hospital Department.

We have had no epidemic or contagious diseases during the year; but we have the sick always with us, consisting of the chronic insane and those afflicted with other diseases consequent upon a life of irregularity; and they now have the benefit of a physician who thoroughly understands their situation, and kindly administers the necessary treatment.

I allude to J. R. Morse, M.D., who has been physician at the institution for the past 15 years. I am most happy to testify to his promptness and efficiency.

The number of deaths during the year ending Nov. 30, 1878, 7; aged as follows: 36, 56, 80, 40, 50, 35, 1½ years. Number of deaths during the year ending Nov. 30, 1877, 8; aged as follows: 25, 50, 76, 45, 60, 64, 64 years, 1 month.

Sanitary.

The sanitary condition of the institution is good. I don't know of any improvement except that which would necessarily follow from the removal of the sick to a separate building.

Religious Services.

The services on the sabbath are conducted by the Rev. F. W. Holland, commencing at 2½ P.M., closing at 3½. The singing is rendered by the children of the house, accompanied by the organ.

School.

The school has decreased about one-third during the past year, owing to the enforcement of the settlement-laws. Miss Hattie A. Butler is now sole teacher; and by her thorough sympathy with her pupils, her genial and pleasant manners, and by the energy and zeal with which she devotes herself to her arduous duties, has made the school, notwithstanding its organic difficulties, to compare favorably with others in the city.

Industrial.

The farm, consisting of about 40 acres, is all under cultivation. One farmer is employed; and, with that exception, the labor is performed by the inmates. The productions are mostly consumed on the premises; although a surplus, sold for

several hundred dollars, has been sent to market the past season.

The offal-department is a branch of the institution, and consists of five wagons running regularly, and during the heated term two additional are required. There are two men to each wagon, who are paid monthly. There are two trips made daily; and the offal is deposited at the Almshouse stables, where the contractors' teams are waiting to remove the succulent compound to their several piggeries.

The city ledge is also an adjunct of the institution, and a valuable one, as it affords work for the inmates when there is nothing else to do. There are at the present time three men employed by the day, getting out stone for which there is a ready market; and it proves to be financially a success, besides acting as a pauper preventive, — they arguing, that, if they have got to work, they will go where they can get paid. Several have expressed themselves thus to me, and I agreed with them, and allowed them to depart; but the ledge still remains a terror to the lazy.

Respectfully submitted.

WILLIAM E. HOUGH, *Warden.*

REPORT

OF

THE ALMSHOUSE PHYSICIAN.

TO THE OVERSEERS OF THE POOR OF THE CITY OF CAMBRIDGE :—

Gentlemen,—In the care of the sick at the Cambridge Alms-house during the past year, I have been called to attend and care for the usual variety of cases of acute disease ; but very much the larger part of my professional service is rendered in the care and treatment of cases of chronic disease, which occupy the hospital department of the institution. A portion of the inmates of this class require constant attendance, as sickness and suffering in some form seems to be their constant companion ; while others have their frequent attacks of sickness, from which they partially recover, but soon return again to their couch of suffering, and again call for aid and sympathy. The inmates outside the hospital rooms have been subjected to frequent attacks of temporary sickness, but those patients have usually made a speedy recovery.

No case of acute form of disease has proved fatal during the past year ; and the chronic cases which have resulted fatally have been those of long standing, and where the vital forces of the system have been worn out by gradual decay.

At the commencement of the year's duties I had 20 upon the sick-list ; and nearly all of that number were sick with chronic disease in some form, and most of them of very long standing. I have had 48 under my care in the hospital during the year. Of that number there were, — males, 21 ; females, 27. The whole number of inmates out of the hospital rooms requiring treatment was 34, divided as follows :—

Men's department, 11 ; in the boys' department, 10 ; in the women's department, 13.

The number now sick belonging to the hospital is 7; the number discharged as improved, 7; the number discharged from the whole number of inmates as cured, 61. The number of cases that have died is 7, making the whole number under treatment during the year 82. The nationality of those sick in the hospital is as follows:—

Born in Ireland	34
Born in United States	11
Born in England	2
Prince Edward Island	1

Of the nationality of those who were sick out of the hospital rooms I have not kept an accurate record, but find from a careful examination of my sick list that they were almost uniformly of foreign birth or parentage. In the cases of sickness which have been fatal the deaths have been as follows:—

From consumption, 2; from cancer, 1; from scirrhus stomach, 1; from dropsy, 1; from disease of the brain, 1; from dropsical effusion upon the brain, 1. The last was a child of two years, feeble or sick from birth, its mother being insane. The fatal cases from consumption were colored men. In all the fatal cases the inmates were received into the institution when far advanced in a disease necessarily fatal: one patient was received within twenty-four hours of his death. There occurred no cases of confinement at the house during the year. Four foundlings have been received at the institution during the year, and were kindly cared for until removed to other similar institutions of charity.

I am happy to report, that, under the present improved system of management in this institution, the number of inmates has been greatly reduced, thereby securing greater comfort to the inmates, as well as many advantages to your Board in your management of the institution. The amount of sickness the past year will compare favorably with that of former years; still the number of inmates whose uniform condition is that of feebleness has been nearly as great as when the number of inmates was much larger, and rendered frequent visits desirable to secure the comfort and welfare of those most needing medical aid, and words of kindly sympathy. I have had under my care a few cases of local diseases of a severe character, which

required close and careful attention for a long time ; but all the cases referred to are now convalescent except one case of hemiplegia, which remains without improvement. The sick have uniformly received the kindly aid and attention of the warden, the matron, and their assistants. With many thanks for the uniform kindness and courtesy I have received from yourselves and former boards of overseers, I remain

Very respectfully yours,

J. R. MORSE.

CAMBRIDGE, Dec. 9, 1878

ANNUAL REPORT
OF THE
CHIEF ENGINEER OF THE CAMBRIDGE FIRE-
DEPARTMENT,
FOR THE YEAR ENDING NOVEMBER 30, 1878.

CHIEF ENGINEER'S OFFICE, CITY HALL,
CAMBRIDGE, Nov. 30, 1878.

TO THE HONORABLE MAYOR AND THE CITY COUNCIL :—

Gentlemen,— According to annual custom, and in conformity with Sect. 6 of the Ordinance in relation to the Fire-Department, I herewith respectfully present my Eighth Annual Report, showing the condition of the department, the losses by fire, and the amount of insurance thereon, together with a list of those composing the force, and a schedule of the apparatus, &c.

Membership.

The department has consisted, the present year, of a chief engineer, 4 assistant engineers, 12 members of steamer companies, 17 members of hook-and-ladder companies, a relief engineer, a driver of supply hose carriage No. 1, a telegraph-operator and one assistant operator, making a total of 103 persons.

Of this number there are 5 engineers of steamers, a relief engineer, 2 telegraph operators, and 13 drivers, all of whom devote their whole time to the city.

The chief engineer devotes his entire time to the service, although not required to do so by the ordinance ; while the assistant engineers and 77 other members are only required to render service on occasion of alarms of fire.

During the present year the ordinance in relation to the fire-

department has been so amended as to reduce the number of members of the hook-and-ladder companies from 17 men to 14 men ; which ordinance will go into effect in January, 1879.

It is believed that the reduction will not affect the general efficiency of this branch of the service. The force will hereafter, and until otherwise ordered, consist of 97 men instead of 103 as at present.

Appropriation, Receipts, and Expenditures.

The appropriation for this department for the year beginning Dec. 1, 1877, and ending Nov. 30, 1878, was \$60,000 ; a reduction of \$17,425 as compared with the appropriation of the previous year.

The expenditures also show a large falling off ; the disbursements amounting to \$59,939.73, while in 1877 they were \$77,417.21, or a difference of \$17,477.48.

The receipts have been in excess of those received in 1877 ; which, credited to the department, will make the actual expenditures \$59,782.57.

The following statement will show the principal items of expenditure, the services of members being the largest outlay :—

Services of members, including salaries of engi-	
neers and pay of substitute drivers for vacations,	\$39,636 63
Water-rates for hydrants and house supplies	6,710 00
Hay, grain, and straw	2,215 30
Repairs of apparatus	1,673 07
Illuminating-gas at engine-stations	1,144 92
Telegraph supplies and repairs	1,071 24
House and engine fuel	1,068 72
Extra horse-hire and men	922 50
Hose repairs	908 04
Labor on telegraph and hydrants	752 18
Engine-house repairs	627 07
Horse-shoeing	495 58
Washing bed-clothing for engine-houses	409 44
New furniture, beds, and bedding	341 13
Hardware, tools, brooms, and brushes	329 18
<i>Amount carried forward</i>	<i>\$58,305 00</i>

<i>Amount brought forward</i>	.	.	.	.	\$58,305 00
Exchange of horses	.	.	.	.	225 00
Veterinary services and medicine	.	.	.	.	214 58
Fines of members	.	.	.	.	182 00
Harnesses and repairs	.	.	.	.	172 97
Oils, cotton-waste, and matches	.	.	.	.	155 34
Miscellaneous, as per books of Auditor	.	.	.	.	684 84
					\$59,939 73
Appropriation	.	.	.	.	\$60,000 00
Expenditures	.	.	.	.	59,939 73
Amount unexpended.	.	.	.	.	\$60 27

It is presumably safe to say that the department can be conducted at considerably less expense the coming year; the City Council having made a large reduction in the compensation of members of the force, which reduction will go into effect at the beginning of the year 1879.

The amount of receipts from all sources has been \$157.16, being \$7.16 more than was anticipated in the estimate at the beginning of the year.

Fires and Alarms.

Our city has enjoyed an immunity from destructive conflagrations; a fact which proves the efficiency of the firemen, when it is considered how possible it is to have a sweeping fire in some of the tinder-like localities in our midst.

The prompt responses of the firemen, and the desire which actuates them successfully to combat the flames, are the united causes which have saved us from the misfortunes of less fortunate communities.

What threatened, at first, to be a destructive fire, occurred on the afternoon of Jan. 7, in the well-known Riverside Press establishment of Messrs. H. O. Houghton & Co., Blackstone Street. The fire originated in the dry press-room, and was caused by a hanging sheet of paper coming in contact with a gas-jet. Instantly the fire enveloped the entire apartment, causing the work-people to beat a hasty retreat.

The presence of mind of Mr. T. A. Scott, a workman, who closed a door leading to the elevator and bookbindery, did much

to keep the fire within the apartment in which it originated, until the arrival of the department.

The weather was bitterly cold; but, notwithstanding this great inconvenience and hindrance to the operations of the firemen, they successfully prevented the fire from getting beyond their control.

As it was, the damage by fire and water on a property upon which there was an insurance of \$150,000, was only \$19,593.67, or a little more than one-seventh of the entire risk.

Aside from this loss, a much greater one would have been incurred, one which the community would have seriously felt, had the entire structure been destroyed; for it not only gives employment to hundreds of operatives, but it contributes to a large amount to the tax revenue of the city.

The insurance loss at this fire fell upon forty-three insurance companies, in sums varying from \$249.92 to \$799.74.

The Boston & Lowell Railroad Corporation was a loser to the extent of \$8,200 by a fire in its coal-shed, Prison Point Street, on Feb. 11. The property damaged was insured for half its value.

The extensive tallow-rendering and oil factory of Messrs. John Reardon & Sons, Waverley Street, was entirely destroyed by fire on the morning of July 10.

The fire originated in an upper story, from some unexplained cause, and was under full headway when discovered. The inflammable stock readily fell a prey to the flames, thereby making the fire a fierce one to combat. Besides the saving of a small portion of the stock, every thing in the building was destroyed.

The loss was estimated at \$22,000, upon which a full insurance existed.

Fires occurred on July 26 and Aug. 5, on the premises of the Eastern Railroad Corporation, Prison Point Street. The first fire was in the extensive coal-shed of the company, on the railroad bridge; and the second fire was in the passenger-car-house on the same bridge. The buildings in which the fires occurred being situated on the bridge, as before stated, made the work of the firemen extra hazardous. The aggregate loss at both of these fires was \$44,810.80.

The foregoing represents the fires of any considerable magnitude for the year, and each of them occurred in

places where large quantities of inflammable materials were in stock.

Fire-alarm Telegraph.

This important branch of the service has continued to work satisfactorily under the management of Mr. George J. Blaisdell, operator, and his assistant, Mr. David J. Campbell. Both of these individuals have given the fullest attention to the responsible work intrusted to their care and supervision, securing thereby an accurate performance of the duty required of the system.

Much inconvenience and annoyance, together with some expense, as has heretofore been the case, have been imposed by the moving of buildings through the public streets; and it would seem to be right and proper that parties desiring to move buildings through the avenues of the city should be required to pay whatever expense may be incurred in the removal of telegraph poles and wires.

I would suggest that an ordinance be enacted to prohibit the crossing of streets with private lines of telegraph wires, without permission, as it frequently interferes with the fire-alarm system. A regulation by ordinance would correct the evil.

One new box, purchased by the Eagle Rubber Company, has been placed on their factory building, Potter Street. The company desired to have ready communication with the department in case of fire, and therefore incurred the expense for their immediate protection. The box is numbered 16, and is a duplicate of Box 16 located on Broadway near the rubber-factory.

The telegraph system consists of five bell-strikers, three being located in church-steeple, and two in bell-towers on public schoolhouses.

There are also 61 street signal-boxes, 385 jars of battery, 9 engine-house gongs, 9 engineers' and police gongs, 4 automatic repeaters, 2 switch-boards, 5 galvanometers, 5 call-bells, 2 sounders, 2 signal-bells, 275 street-poles, and 81 miles of line wire.

The following articles of stock were on hand Nov. 30: 6 battery-jars, 3 street-poles, one mile and a quarter of compound wire, one-quarter of a mile of No. 9 galvanized wire, four dozen

brackets, six dozen insulators, 10 cross-arms, half-ton blue vitriol, 274 new zincs, and 10 tripods.¹

I would recommend the placing of a street signal-box in the vicinity of Main and Pelham Streets, and also one in the neighborhood of Winsor and Plymouth Streets.

Accidents.

But few accidents attending the performance of duty have befallen members of the service during the year.

While proceeding to Box 15, from which an alarm was given on Dec. 5, the chief engineer was thrown from his wagon by the breaking of an axle, and received slight bruises.

Jeremiah R. Hobbs, driver of Truck No. 2, and a citizen, had their hands painfully burned while removing a piece of machinery from a burning building on York Street on Dec. 5.

Hiram Blood, engineer of Engine No. 3, received injuries to his head and one arm by coming in contact with the machinery of his engine while working the same at the fire on the premises of the Boston & Lowell Railroad Corporation, Prison Point Street, Feb. 11.

The explosion of a boiler in the Boston Stamping Company's works, Third Street, for which an alarm of fire was given April 6, caused a sad sacrifice of life.

Nathan N. B. Burgess, Michael Moylan, and James Anglin were employed upon the premises, and at the time of the explosion were engaged at their usual avocations, Moylan being the engineer of the works.

The force of the explosion was such as to drive the boiler completely through one of the workshops, tearing every thing before it, and carrying the unfortunate men who lost their lives with it for a distance of one hundred feet. The bodies of the deceased were torn and mutilated in a horrible manner.

Several other persons, both male and female, employed on the premises, were more or less injured. There was no loss by fire.

A man named B. R. Harris, a resident of Somerville, fell through an opening in the railroad bridge while witnessing the

¹ A horse and wagon, the latter containing all necessary appurtenances for the erection and care of the telegraph, are kept constantly on hand, together with other equipments essential to the general welfare of the service.

burning of the car-house of the Eastern Railroad Corporation, Aug. 5, and was drowned.

Capt. Francis P. Scanlan, of Engine Company No. 5, was run over by the hose-carriage of the company while answering the alarm from Box 43, Nov. 6. The wheels of the vehicle passed over one arm and one foot, and he also received injuries to his head.

Hydrants and Reservoirs.

The Superintendent of the Water-works has increased the number of fire-hydrants by locating eight new ones in places where they were much needed, especially on Bridge and Prison Point Streets, where a larger service-main was laid, and where the water supply was quite deficient.

The same officer has also substituted hydrants of the post pattern in places where the old-style flush hydrants have given out, and it is his purpose to do so in the future.

The whole number of hydrants is 573. Of this number there are 337 flush or surface hydrants, and 236 of the post pattern, a much more desirable hydrant in every way.

Two large reservoirs in Lafayette Square, constructed nearly fifty years ago, were recently found to be out of repair, and in a dangerous condition about the chimney-openings to them. They were thoroughly repaired at a moderate cost, and will last for as many years as they have already existed.

Being situated in a prominent locality, they will serve to furnish a water supply of a desirable quantity, as they are not only fed by living springs, but are also connected with the Fresh Pond water.

The large reservoir at the corner of Austin and Douglass Streets was abandoned by this Department during the past summer in order that a public sewer might be laid in those streets. The grade of the sewer being below the roof-covering of the reservoir, necessitated its abandonment.

The Fire Apparatus and Equipments.

During the year it was found necessary to make important repairs upon Engines 3 and 4; and they were placed in the hands of Morrill & Allen, machinists, and Campbell Brothers & Co., boiler-makers, of this city. It was deemed requisite, after a close inspection, to place new boilers upon the apparatus

named, and also to renew certain parts of the running machinery.

The work was absolutely necessary, as the boilers were badly eaten with rust, and were considered to be unsafe in that condition.

The mechanics having the work in hand were successful to a marked degree, and it is safe to predict that the new boilers will last for several years.

It is thought that the chemical properties of the Fresh Pond water have had much to do with the imperfections found in the discarded boilers; and it is possible, if not probable, that Engines 1 and 2 are now in the same condition as were Engines 3 and 4.

To be assured, and to prevent possible accidents, each of the Engines Nos. 1 and 2 will be placed in the shop for a thorough inspection; and if found necessary new boilers will be substituted for the present ones.

Two old engines, the original No. 3 built in 1862, and the former No. 2 built in 1863, are still owned by the city, the latter apparatus being used as a "spare" or "relief" engine.

The first named could be repaired at small cost by adding a new boiler; which would be advantageous to the city, inasmuch as it would be a great sacrifice to the city to undertake the sale of it, as but little could be realized thereby.

Properly repaired, this engine could be utilized also as a "relief," at times when repairs are being made on the regular engines.

The hook-and-ladder trucks are in good condition, as are also the several hose-carriages, excepting Nos. 3 and 5.

Additional Apparatus and Equipment.

For some years past there have been in use in nearly every fire-department in the country, what are known as "relief valves," and "shut-off nozzles." These valves are connected with the pump of the engine, and are automatically operated, the pipeman being enabled to instantly shut off the water at the pipe when necessary; the pressure on the hose, upon such shutting off, being relieved by the operation of the valve without stopping the movements of the engine.

These valves are beneficial, in that they control the discharge

of water in a building where valuable goods are stored, and also prevent the usual noise attending the commands to "hold on" and "play away."

Their usefulness having been fully established in the principal cities of the country, I would advise that all our engines be furnished with them. The cost will be but trifling when comparison is made with the great saving they accomplish in preventing damage by water, incidental to the extinguishment of fire.

I have heretofore called the attention of the City Council to the necessity of providing better ladder facilities for the remote section of the city, known as North Cambridge. That such protection should be afforded, is beyond all question; but how best to accomplish it, is a problem in some minds.

It has been thought by some, that the removal of Hook-and-Ladder Truck No. 1, from Western Avenue to the City Building, in Brattle Square, would be the most advisable course to pursue; giving as a reason of some plausibility, that a saving of six or seven minutes would be secured in the response of the Truck from the latter-named location.

This view of the case must be conceded by candid minds; but still, what is really desired for that section of the city is earlier attendance than can be secured from the Brattle-square locality.

Under the most favorable auspices it would take from eight to ten minutes to repair from Brattle Square to the Shepard Schoolhouse; a period of sufficient length, in case of fire in that building, to endanger the lives of scores of children before succor could reach them.

With this view of the matter, I am fully impressed with the opinion, that Ward Five should be independent, in a measure, of other parts of the city, and should have a ladder apparatus upon which immediate reliance could be placed.

The proposed change of Truck No. 1 would to a great extent uncover a large amount of valuable property in Wards Two and Four which the Truck now readily covers.

In these two wards there are several large schoolhouses, and also factory-buildings where hundreds of operatives are employed, where early ladder-service might be the means of saving human life.

It would seem, that, under the present circumstances, some-

thing should be done to afford better protection in the direction alluded to.

I would advise that the "Bangor Ladders" be purchased for use of this Department, particularly, since by action of the City Council, the hook-and-ladder companies have been reduced from seventeen to fourteen men.

To handle our present style of long ladders with the reduced number of men, will be an imposition which will cause the most strenuous exertions on their part, more particularly when the ground is covered with snow and ice.

The "Bangor Ladders" are easily handled, requiring but a few men to raise them to a given elevation, after which an endless chain and crank perform the rest.

The principal departments of the country, and also factory, hospital, and college buildings have them in use, their merits being the ease with which they are operated.

Admissions and Discharges.

The following changes have taken place in the membership of the companies named below:—

Engine Co. No. 3, George F. Batchelder was discharged July 20, at his own request; and Walter Baker was appointed to the vacancy, July 24.

Engine Co. No. 4, Thomas J. Benwell was discharged, Oct. 20, at his own request; and Charles F. Soule was appointed to the vacancy, Nov. 6.

Hook-and-Ladder Co. No. 1, Daniel E. Owen was discharged for neglect of duty, Oct. 20.

No appointment was made for this vacancy; a reduction of the membership of the hook-and-ladder companies having been determined by the City Council, by the passage of an ordinance to that effect, alluded to elsewhere.

Department Hose.

The condition of the hose in service is about the same as reported last year. None of it has been put to severe tests, owing to the few fires at which it was used.

The new cotton hose purchased last year has given satisfaction, and I would suggest that a further purchase of cotton hose be made.

At the burning of North & Co.'s pork-packing establishment in Somerville, June 16, Engine Co. No. 5 of this city lost 200 feet of hose by burning, which was replaced by the Somerville authorities, through Chief Engineer Hopkins, who returned 200 feet of new cotton hose.

Engine Co. No. 4, of the Boston Fire Department, lost 200 feet of hose by burning, while assisting at the fire which destroyed the car-house of the Eastern Railroad Corporation, Aug. 5.

This loss was repaired by order of the Cambridge City Council, which directed that 200 feet of hose be purchased for the Boston Fire-Department.

Wards in which Alarms occurred.

The following table will show the location of fire-alarms by wards, from Dec. 1, 1877, to Nov. 30, 1878:—

WARDS.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Totals.
1	1	..	2	..	1	2	..	..	1	1	..	2	10
2	4	2	5	1	5	..	5	1	..	..	1	..	24
3	2	1	..	1	1	5	1	3	3	2	..	..	19
4	1	1	..	1	1	..	..	3	2	..	2	..	11
5	1	1	..	2	1	..	..	2	..	1	..	..	8
Totals	9	5	7	5	9	7	6	9	6	4	3	2	72

Hours at which Alarms were given.

The following table shows the hours at which alarms were given, the fractions of time being omitted : —

1877-78.	A.M.												Total A.M.	P.M.												Total P.M.	Totals.
	1	2	3	4	5	6	7	8	9	10	11	12		1	2	3	4	5	6	7	8	9	10	11	12		
Dec. . .	1	..	1	..	..	..	..	..	..	..	1	..	3	..	..	2	1	..	..	1	2	..	..	..	..	6	9
Jan. . .	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	1	..	..	1	..	2	..	..	..	4	5
Feb. . .	..	..	..	..	..	..	..	..	..	2	3	..	5	..	..	..	..	..	..	2	..	..	..	..	..	2	7
March . .	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	1	..	1	..	..	..	1	1	..	..	4	5
April . .	1	..	1	..	..	..	..	..	1	..	..	..	3	2	..	..	1	..	..	1	1	1	..	..	..	6	9
May .. .	1	..	..	..	..	..	..	..	..	1	..	1	3	1	..	..	1	..	..	..	2	..	..	..	..	4	7
June . .	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	1	..	3	..	..	6	6
July . .	..	..	1	1	..	1	..	..	..	..	2	..	5	..	..	1	1	..	..	..	..	..	2	..	..	4	9
Aug. . .	1	..	1	..	..	..	..	1	..	..	..	..	3	..	..	..	..	..	1	..	1	1	..	..	..	3	6
Sept. . .	3	..	..	..	..	..	..	..	..	..	..	..	3	..	..	1	..	..	..	..	..	..	..	..	..	1	4
Oct. . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	..	..	..	3	3
Nov. . .	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	2	2
Totals . .	7	..	5	1	..	1	..	1	2	3	6	1	27	5	..	4	5	2	2	5	8	4	6	4	..	45	72

Cambridge Firemen’s Relief Association.

This benevolent organization still continues to be the recipient of the generous contributions of the citizens.

It is now in a most flattering financial condition, the Treasurer, Capt. William B. Cade, reporting the amount deposited in the Cambridgeport Savings Bank, Nov. 30, 1878, to be \$2,757.37.

The expenditures for the year for relief purposes, &c., were only \$87.65.

- The officers of the Association are as follows : —
- President. — P. H. Raymond.
 - Vice-President. — William H. Emory.
 - Secretary. — Charles Emerson.
 - Treasurer. — William B. Cade.
 - Trustees. — P. H. Raymond, William H. Emory, William B. Cade, William Parker, Edgar H. Locke, Francis P. Scanlan, Charles Emerson, Alford F. Chadwick.

Acknowledgments.

In closing this Report I desire to tender my thanks to His Honor the Mayor for his uniform courtesy towards me at all times.

I would also convey, through this channel, my deep-felt obligations to the City Council for its recognition of matters connected with this Department.

The members of the Joint Standing Committee on Fire-Department, Aldermen Smith and Kendall, and Councilmen Lamson, Dodge, and Clary, will accept my thanks for their kindness and cordial support.

The Board of Engineers, and the several companies, will also accept the expression of my esteem for their faithful performance of duty.

To Chief Hagar of the police, and his subordinate officers, I am indebted for their prompt attendance at fires, and valuable services thereat.

The several Department officers at City Hall will accept my acknowledgments for services rendered.

The Fire-Commissioners and Chief Engineer Green of the Boston Fire-Department, and members of the force, also Chief Engineer Hopkins and members of the Somerville Fire-Department, are entitled to the expression of my consideration for their valuable assistance at fires in this city.

Respectfully submitted.

P. H. RAYMOND, *Chief Engineer.*

APPENDIX.

Joint Standing Committee on Fire-Department.

ALDERMEN Smith and Kendall.
COUNCILMEN Lamson, Dodge, and Clary.

Board of Engineers.

NAME.	Rank.	Age.	Residence.	Salary per Annum.
Patrick H. Raymond . . .	Chief . . .	48	10 Pleasant Street .	\$1,200 00
Thomas J. Casey . . .	1st Assistant .	45	173 Cambridge Street	400 00
Richard F. Tobin . . .	2d Assistant .	34	5 Winsor Street . .	400 00
Nathaniel W. Bunker . .	3d Assistant .	35	6 Beech Street . .	400 00
Charles W. Brackett . .	4th Assistant .	42	133 Mt. Auburn Street	400 00
Nathaniel W. Bunker . .	Secretary . .	..	. . . . .	50 00

Cambridge Steam Fire-Engine Company, No. 1.
House in Brattle Square, City Building.

NAME.	Rank.	Age.	No. of Badge.	Ocupation.	Monthly Pay.
Edward E. Priest . .	Engineer .	41	3	Engineer	\$90 00
Hiram W. Hooker .	Driver .	40	5	Driver	75 00
Robert T. Hixon . .	“ .	34	10	“	75 00
William H. Emory .	Foreman .	45	1	Printer	18 33
Edward E. Keyes . .	Fireman .	27	7	Bookbinder . . .	16 67
John L. Jones, Jr. .	Hoseman .	27	4	Printer	16 67
John K. Perkins . .	“ .	29	12	Cabinet-maker . .	16 67
Thomas W. Jones . .	“ .	29	8	Electrotype-finisher .	16 67
John H. Brown . .	“ .	27	11	Cigar-maker . . .	16 67
John E. Beleher . .	“ .	25	6	Clerk	16 67
Edward B. O'Brien .	“ .	27	9	Produce-dealer . .	16 67
James Jefferson . .	“ .	25	2	Wood-worker . .	16 67

The engine operated by the above company was built by the Amoskeag Manufacturing Company, Manchester, N.H., and is rated as second-class. It is supplied with one steam cylinder 8½ inches in diameter, one double-acting, vertical plunger pump 4¾ inches in diameter, with 12-inch stroke. The engine is supplied with two copper tanks, which contain a supply of fresh water, to be used when drafting sea-water. The engine, when

worked to its full capacity, will discharge 400 gallons per minute. Put in service Sept. 18, 1864.

Union Steam Fire-Engine Company, No. 2.
House on Main Street, near Winsor.

NAME.	Rank.	Age.	No. of Badge.	Oecupation.	Monthly Pay.
Thomas Wiseman . .	Engineer .	34	17	Engineer . . .	\$90 00
John H. Walker . .	Driver .	49	19	Driver . . .	75 00
William H. Foss . .	" .	38	27	" . . .	75 00
William B. Cade . .	Foreman .	44	15	Polisher . . .	18 33
Amos B. Jarvis . .	Fireman .	34	24	Bookbinder . . .	16 67
Daniel McCarty . .	Hoseman .	42	21	Blacksmith . . .	16 67
Arthur C. Day . .	" .	41	25	Box-maker . . .	16 67
James Cunningham .	" .	36	28	Wood-turner . . .	16 67
Benjamin D. Foss . .	" .	42	18	Carpenter . . .	16 67
Charles E. Conner . .	" .	27	23	Machinist . . .	16 67
Albert F. Sawyer . .	" .	35	20	Painter . . .	16 67
Joseph Fellows . .	" .	27	22	Clerk . . .	16 67

The engine in charge of this company was contracted for in August, 1873, and put in service Nov. 28, 1873. The engine is of second-class construction, and was built by the Amoskeag Manufacturing Company, Manchester, N.H., where the several engines in the Department were constructed.

The boiler contains 301 brass tubes, each tube being 18 inches long and 1¼ inches in diameter. The main forcing-pump, double-acting and made of brass, measures 4½ inches in diameter, and has a stroke of 8 inches. The steam cylinders have a diameter of 6⅞ inches, and an 8-inch stroke.

Niagara Steam Fire-Engine Company, No. 3.
House on Fourth Street, near Cambridge.

NAME.	Rank.	Age.	No. of Badge.	Oecupation.	Monthly Pay.
Hiram Blood . . .	Engineer .	46	31	Engineer . . .	\$90 00
James S. Casey . .	Driver .	42	33	Driver . . .	75 00
Lorenzó H. Dale . .	" .	36	34	" . . .	75 00
William Parker . .	Foreman .	38	29	Carver . . .	18 33
Elliott E. Alley . .	Fireman .	42	31	Upholsterer . . .	16 67
Michael G. Collins . .	Hoseman .	33	36	Painter . . .	16 67
Edwin Winward . . .	" .	32	40	Clerk . . .	16 67
Alexander S. Atkins .	" .	33	43	" . . .	16 67
John Casey . . .	" .	28	35	Britannia-worker . .	16 67
William F. Newman .	" .	32	41	Wood-worker . . .	16 67
Cornelius J. Donovan .	" .	34	38	Wood-turner . . .	16 67
Walter Baker . . .	" .	24	32	Organ-pipe maker . .	16 67

The engine in charge of this company was contracted for in 1871, and put in service Jan. 19, 1872, and is a fine and very powerful specimen of steam-machinery used for the extinguishment of fires. Like all other steamers owned by the city, it was built by the Amoskeag Manufacturing Company of Manchester, N.H. The engine is of first-class construction, and has a boiler 32 inches in diameter and 66 inches long, containing 301 brass tubes, each tube being 18 inches long and $1\frac{1}{4}$ inches in diameter.

The main forcing-pump is $4\frac{3}{8}$ inches in diameter, and has a stroke of 8 inches in length. The steam cylinders measure $7\frac{3}{4}$ inches in diameter, with a stroke of piston of 8 inches.

Daniel Webster Steam Fire-Engine Company, No. 4.

House on North Avenue, near Russell Street.

NAME.	Rank.	Age.	No. of Badge.	Occupation.	Monthly Pay.
John E. Ricker . .	Engineer .	34	45	Engineer . . .	\$90 00
George E. Muzzey .	Driver .	36	48	Driver . . .	75 00
Sylvanus G. Griffin .	“ .	31	46	“ . . .	75 00
John W. Holbrook .	Foreman .	36	55	Carriage-trimmer . .	18 33
George T. Presby .	Fireman .	36	47	Lager-beer dealer .	16 67
Benjamin Young . .	Hoseman .	34	49	Carpenter . . .	16 67
Edgar H. Locke . .	“ .	32	53	Provision-dealer . .	16 67
Frank C. Mullett . .	“ .	25	51	Confectioner . . .	16 67
Hugh T. Barker . .	“ .	28	54	Confectioner . . .	16 67
J. Herbert Griffin .	“ .	26	43	Carpenter . . .	16 67
William J. Hanna . .	“ .	..	50	Plumber and gasfitter .	16 67
Charles F. Soule . .	“ .	36	56	Painter . . .	16 67

The engine controlled by this company is of the double pump, second-class, small size pattern, with $4\frac{1}{8}$ -inch pump cylinders, and 8-inch stroke, steam cylinders $6\frac{7}{8}$ -inch diameter, and 8-inch stroke; and, without fuel or water, in weight 5,800 pounds. It was built by the Amoskeag Manufacturing Company of Manchester, N.H., and put in service May 28, 1869.

P. H. Raymond Steam Fire-Engine Company, No. 5.*House in Inman Square.*

NAME.	Rank.	Age.	No. of Badge.	Occupation.	Monthly Pay.
Charles E. Berry . .	Engineer .	31	102	Engineer . . .	\$90 00
Joseph P. Cartwright .	Driver .	42	104	Driver . . .	75 00
Francis P. Carr . .	" .	34	105	" . . .	75 00
Francis P. Seanlan .	Foreman .	32	100	Painter . . .	18 33
Charles W. Porter .	Fireman .	30	103	Clerk . . .	16 67
Dana R. Hovey . .	Hoseman .	39	106	Clerk . . .	16 67
John D. De Ronde .	" .	39	108	Cabinet-maker . .	16 67
Conrad D. Kinnear .	" .	39	101	Clerk . . .	16 67
James F. Glynn . .	" .	27	109	Iron-moulder . .	16 67
George W. Butler . .	" .	36	111	Engineer . . .	16 67
John Fitzgerald . .	" .	31	110	Iron-moulder . .	16 67
George T. Brown . .	" .	30	107	Stone-cutter . . .	16 67

The engine operated by this company is of the same pattern as Nos. 2 and 3, and was purchased in 1876 to take the place of the single-pump engine at first put in service when the company was organized, Nov. 30, 1874.

Franklin Hook-and Ladder Company, No. 1.*House in City Building, corner of Western Avenue and Green Street.*

NAME.	Rank.	Age.	No. of Badge.	Occupation.	Monthly Pay.
George W. Lamson . .	Driver .	37	59	Driver . . .	\$75 00
Charles Emerson . .	Foreman .	33	69	Confectioner . . .	18 33
Albert S. Benson . .	Assistant .	34	72	Box-maker . . .	17 50
James P. Ewell . .	Ladderman	42	62	Pianoforte-key maker .	16 67
Charles S. Abbott . .	" .	38	65	Ivory-layer . . .	16 67
Charles H. Wiggin, Jr..	" .	30	70	Musieian . . .	16 67
Charles H. Waite . .	" .	32	73	Clerk . . .	16 67
George R. Oliver . .	" .	27	57	Polisher . . .	16 67
John T. Mahaffey . .	" .	33	67	Carpenter . . .	16 67
William Parks . .	" .	34	77	Iron-moulder . . .	16 67
William H. Lydston .	" .	31	68	Carpenter . . .	16 67
Clarence A. Moore . .	" .	28	58	Confectioner . . .	16 67
Charles A. Sharon . .	" .	29	64	Machinist . . .	16 67
Joseph B. Farmer . .	" .	40	74	Steam and gas fitter .	16 67
Warren H. Dow . .	" .	28	71	Box-maker . . .	16 67
Elisha W. Morey . .	" .	31	61	Furniture-polisher .	16 67

Mayor Bradford Hook-and-Ladder Company, No. 2.*House on Cambridge Street, corner of Portland.*

NAME.	Rank.	Age.	No. of Badge.	Occupation.	Monthly Pay.
Jeremiah R. Hobbs .	Driver .	31	81	Driver	\$75 00
Alford F. Chadwick .	Foreman .	43	88	Carpenter . . .	18 33
Walter R. Marsh . .	Assistant .	41	83	Oil-clothes maker .	17 50
Jacob F. Bradcen . .	Ladderman	45	84	Teamster . . .	16 67
Philip C. Munroe . .	"	37	91	Furniture-mover . .	16 67
Thomas L. Hunter . .	"	38	93	Iron-moulder . . .	16 67
James M. Keaney . .	"	27	94	Pork-packer . . .	16 67
Michael Cairns . . .	"	41	95	Carpenter	16 67
Orville W. Van Duzee .	"	32	82	Iron-moulder . . .	16 67
George H. Taylor . .	"	43	79	Sailmaker	16 67
Hamilton Porter . . .	"	35	90	Blacksmith	16 67
William Haley . . .	"	30	86	Cabinet-maker . . .	16 67
Charles H. Chapman .	"	25	89	Building-mover . .	16 67
George E. Carter . . .	"	29	80	Picture-frame maker .	16 67
Charles L. Pike . . .	"	30	85	Box-maker	16 67
Freeman R. Richards .	"	27	92	Carpenter	16 67
Joseph E. Chick . . .	"	28	87	Box-maker	16 67

Both hook-and-ladder trucks are drawn to fires by horses, and each truck is furnished with proper appurtenances.

Supply Hose-Carriage, No. 1.*House in City Building, Green Street.*

NAME.	Rank.	Age.	No. of Badge.	Occupation.	Monthly Pay.
Lewis C. Clark . . .	Driver .	33	78	Driver	\$75 00

Relief Engineer.

NAME.	Rank.	Age.	Occupation.	Monthly Pay.
John D. Thompson . .	Engineer . . .	37	Engineer	\$90 00

Cambridge Fire-Alarm Telegraph.*Battery Station in City Building, Ward One.*

NAME.	Rank.	Age.	Occupation.	Monthly Pay.
George J. Blaisdell . .	Telegraph operator .	34	Telegraph operator .	\$90 00
David J. Campbell . .	Assistant operator .	31	Assistant operator .	75 00

CAMBRIDGE FIRE-ALARM TELEGRAPH.

Location of Signal-Boxes.

No.	No.
2. Bridge Street, corner of Prison Point.	38. Magazine Street, corner of Lake.
6. Third Street, corner of Broadway.	39. Magazine Street, corner of Chestnut.
7. Third Street, corner of Bent.	41. Pleasant Street, corner of Fairmont.
8. Third Street, corner of Thorndike.	42. Blackstone Street, opposite Riverside Press.
9. Cambridge Street, Beal & Hooper's Building.	43. Banks Street, corner of Flagg.
12. Winter Street, corner of Third.	45. Franklin Street, near Soden.
12. North Street, corner of Water (duplicate).	46. Main Street, corner of Hancock.
13. Fourth Street, No. 3 Engine House.	47. Broadway, corner of Antrim.
14. Sixth Street, corner of Cambridge.	48. Cambridge Street, corner of Hampshire (junction).
15. Vine Street, corner of Fifth.	49. Cambridge Street, corner of Baldwin.
16. Broadway, Hancock & Greely's Building.	51. Broadway, corner of Ellery.
16. Potter Street, Rubber Factory Building (duplicate).	52. Mt. Auburn and Main Streets (junction).
17. Washington Street, corner of Brewery.	53. Bow Street, corner of Linden.
21. Sydney Street, corner of Allston.	54. Cambridge Street, corner of Sumner.
23. Pearl Street, corner of Auburn.	57. Oxford Street, corner of Mellen.
24. Brookline Street, corner of Valentine.	59. Harvard Square, Ramsay's Apothecary.
25. Main and Front Streets (junction).	61. Brattle Square, City Building.
26. Main Street, corner of Osborn.	62. Mt. Auburn Street, corner of Hiliard.
27. Clark Street, corner of Harvard.	63. Brattle Street, corner of Mason (junction).
28. Broadway, opposite Page's Box-Factory.	64. Garden Street, corner of Chauncy.
29. Pine Street, corner of Washington.	65. North Avenue, corner of Shepard.
31. Cambridge Street, corner of Harding.	68. North Avenue, near Railroad Bridge.
32. Cambridge Street, corner of Columbia.	69. North Avenue, No. 4 Engine House.
34. Columbia Street, corner of Hampshire.	71. North Avenue, near Tannery.
35. Harvard Street, corner of Norfolk.	72. Cedar Street, Hotel Building.
36. Main Street, corner of Western Avenue.	73. Spruce Street, near Bay State Brick Yard.
37. Pleasant Street, corner of River (junction).	74. Dublin Street, corner of Railroad.

No.		No.	
75.	Walden Street, corner of Raymond.	83.	Mt. Auburn Street, near Belmont line.
78.	Concord Avenue, corner of Sparks.	91.	North Avenue, Union Railway car-house.
79.	Brattle Street, corner of Sparks.		
82.	Brattle Street, corner of Elmwood Avenue.	92.	Gore Street, J. P. Squire's Building.

Location of Bell-Strikers.

Unitarian Church, Harvard Square	.	.	.	.	Ward One.
Methodist Church, Harvard Street	.	.	.	.	Ward Two.
Putnam Schoolhouse, Fourth Street	.	.	.	.	Ward Three.
Webster Schoolhouse, Upton Street	.	.	.	.	Ward Four.
Baptist Church, North Avenue	.	.	.	.	Ward Five.

Instruction to Key-Holders.

Alarms are to be given from the box nearest the location of the fire.

To give an alarm, open the door, pull the hook to the bottom of the slot once, and let go.

Each box contains a small bell, which, if heard before you pull, indicates that the alarm has been previously given. Any person listening at a box will learn the number of the box from which the alarm was given. For instance : If an alarm proceeds from Box 36, the bells and gongs attached will strike three, then, after a short pause, six consecutive blows, thus : III — IIIII.

Don't give an alarm for a fire seen at a distance unless assistance is called for.

Citizens are earnestly requested to inform themselves where keys to the signal-boxes are kept; signs suitably inscribed are placed over each box, giving the requisite information.

Instruction to Firemen, &c.

Companies not required to respond to first or second alarms will be notified by two strokes on the gongs that their services WILL NOT be needed, and that orders have been given to "make up." Should an alarm be given from any box while a portion of the Department is engaged at a fire, the engine or ladder company located nearest to such box will immediately answer such alarm. Engine companies answering third alarms will also respond in the same manner as is described in the preceding sentence.

Police-officers and citizens who may give an alarm of fire are requested to remain at the signal-box until the arrival of an engine or ladder company, and then direct them to the locality of the fire.

FIRES AND ALARMS

FOR THE YEAR COMMENCING DEC. 1, 1877, AND ENDING NOV. 30, 1878.

DECEMBER.

MONDAY, DEC. 3, 11.52 A.M. Box 41.

Fairmont Street. Dwelling-house, owned by John Stafford, and occupied by N. M. Stafford. No loss. Fire caused by burning soot in chimney. Apparatus present: Engines 1, 2, and 5, and Hook and Ladder 1, and Supply Hose 1. Department under command of Chief Engineer Raymond.

TUESDAY, DEC. 4, 8.35 P.M. Box 91.

Reed Street. Unoccupied dwelling-house, owned by Michael Murphy. Fire supposed to have been caused by a tinman's furnace, which was being used upon repairs. Loss on building, \$775. Insurance on same, \$775. Apparatus present: Engines 1, 4, and 5, and Hook and Ladder 1. Department under command of Chief Engineer Raymond.

WEDNESDAY, DEC. 5, 3.25 P.M. Box 15.

Vine Street. Dwelling-house, owned and occupied by Louis Vaupel. Fire caused by burning soot in chimney. No loss. While proceeding to this fire the Chief Engineer was thrown from his wagon, by the breaking of an axle, receiving slight bruises. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 2, and Supply Hose 1. Department under command of Assistant Engineer Casey.

WEDNESDAY, DEC. 5, 8.45 P.M. BOXES 28 AND 31.

Plymouth Street. Unoccupied frame building, owned by the Boston Cricket Club. Cause of fire unknown, but probably incendiary. Loss on building, \$150. No insurance. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 1 and 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

TUESDAY, DEC. 11, 3.49 P.M. Box 13.

Cambridge Street. Church building, Second Baptist Society. No loss. Alarm caused by smoke passing through interstices in a chimney. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

THURSDAY, DEC. 13, 7.32 P.M. Box 63.

Brattle Street. Large barn, owned by Hunnewell heirs, and occupied by C. H. Hunnewell and W. C. Potter. Loss trifling. Cause of fire, explosion of kerosene-lamp. Apparatus present: Engines 1, 4, and 5, and Hook and Ladder 1, and Supply Hose 1. Department under command of Chief Engineer Raymond.

FRIDAY, DEC. 21, 4.47 P.M. Box 6.

Third Street. Retort building, owned by Cambridge Gas-Light Co. Loss trifling. Fire caused by boards and tar on retorts catching fire. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 1 and 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

MONDAY, DEC. 31, 1.50 A.M. Box 16.

Broadway. Kindling-wood building, owned and occupied by F. H. Lewis. Cause of fire, supposed incendiary. Loss on building and stock, \$91.50. Insurance, \$91.50. Apparatus present, Engines 2, 3, and 5, and Hook and Ladder 1 and 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

MONDAY, DEC. 31, 3.45 A.M. Box 16.

Broadway. Kindling-wood building, owned and occupied by F. H. Lewis. Loss trifling. Building supposed to have again been fired. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 1 and 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

JANUARY.

THURSDAY, JAN. 3, 8.55 P.M. Box 28.

Davis Street. Soap Works, owned and occupied by Hale, Teele, & Bisbee. No loss. Cause of fire, hot ashes thrown against wooden conductor leading from roof-gutter. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 1 and 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

MONDAY, JAN. 7, 5.19 P.M. Box 42.

Blackstone Street. Riverside Press building, owned and occupied by H. O. Houghton & Co. Cause of fire, sheet of paper coming in contact with gas-jet in dry-press room. Loss on building and stock, \$19,593.67. Insurance on same, \$19,593.67. Apparatus present: Engines 1, 2, 3, and 5, Hook and Ladder 1, and Supply Hose 1. Department under command of Chief Engineer Raymond.

WEDNESDAY, JAN. 9, 9.45 A.M. BOXES 28 AND 31.

Plymouth Street. Dwelling-house, owned by Charles F. McClure, and occupied by Lawrence Henderson. Cause of fire not ascertained. Loss on building, \$62. Insurance on same, \$62. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 1 and 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

THURSDAY, JAN. 24, 10.47 P.M. BOX 14.

Thorndike Street. Stable building, owned by Stephen Baldrey. Loss trifling. Cause of fire, overheated stove-pipe. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

THURSDAY, JAN. 31, 10.56 P.M. BOX 73.

Sargent Street. Dwelling-house, owned and occupied by Martin Murphy. Cause of fire not ascertained. Loss on building, \$100. Insurance on same, \$100. Apparatus present: Engines 1, 4, and 5, and Hook and Ladder 1. Department under command of Assistant Engineer Bunker, owing to sickness of the Chief Engineer.

FEBRUARY.

MONDAY, FEB. 11, 11.58 A.M. BOX 9. (Three alarms were given for this fire, calling out the entire Fire Department.)

Prison-Point Street. Coal-sheds, owned and occupied by the Boston and Lowell Railroad corporation. Cause of fire believed to be sparks from locomotive. Loss on building and coal, \$8,200. Insurance on same, \$4,200. Apparatus present: Engines 1, 2, 3, 4, and 5, and Hook and Ladder 1 and 2, and Supply Hose 1; also the Boston Fire-Boat, and Engines 6 and 28, and portions of the Somerville Fire-Department. Department under command of Assistant Engineer Casey, owing to sickness of the Chief Engineer.

TUESDAY, FEB. 12, 8.11 P.M. BOX 9.

Cambridge Street. Tenement-house, owned by Alpheus Stetson, and occupied by several families. Cause of fire, explosion of kerosene-lamp. No loss. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 2, and Supply Hose 1. Department under command of Assistant Engineer Casey, owing to sickness of the Chief Engineer.

WEDNESDAY, FEB. 13, 8.10 P.M. BOX 82.

Brattle Street. Greenhouse, owned and occupied by John C. Gray. Cause of fire, overheated pipes. Loss on building and plants, \$200. No insurance. Apparatus present: Engines 1, 4, and 5, and Hook and Ladder 1, and Supply Hose 1. Department under command of Assistant Engineer Bunker, owing to sickness of the Chief Engineer.

THURSDAY, FEB. 14, 10.03 A.M. Box 43.

Hayes Court. Dwelling-house, owned and occupied by Daniel McNamara. Loss trifling. Cause of fire, accidental burning of clothing in a closet. Apparatus present: Engines 1, 2, and 5, and Hook and Ladder 1, and Supply Hose 1. Department under command of Assistant Engineer Tobin, owing to sickness of the Chief Engineer.

WEDNESDAY, FEB. 20, 10.12 A.M. Box 48.

Cambridge Street. Dwelling-house, owned and occupied by J. Ben-shimol. Loss trifling. Cause of fire, accidental burning of box of papers. Apparatus present: Engines 1, 2, and 5, and Hook and Ladder 1 and 2, and Supply Hose 1. Department under command of Assistant Engineer Tobin, owing to sickness of the Chief Engineer.

MARCH.

MONDAY, MARCH 4, 10.54 P.M. Box 73.

Jackson Street. Dwelling-house, owned and occupied by P. Fallon. Cause of fire, probably defect in chimney. Loss on building, \$750. Insurance on same, \$750. Apparatus present: Engines 1, 4, and 5, and Hook and Ladder 1. Department under command of Chief Engineer Raymond.

TUESDAY, MARCH 12, 4.58 P.M. Box 9.

First Street. Dry-house building, owned by Nancy D. Woodbury, and occupied by J. Buffum & Co. Cause of fire, overheated pipes. Loss on building, \$22.80. Insurance on same, \$22.80. Loss on lumber, \$248.77. Insurance on same, \$248.77. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 1, and Supply Hose 1. Department under command of Chief Engineer Raymond.

FRIDAY, MARCH 15, 11.46 P.M. Box 6.

Main Street. Machine-shop building, owned and occupied by Kendall & Roberts. Loss trifling. Cause of fire, woodwork under boiler not properly protected by masonry. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 1 and 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

TUESDAY, MARCH 19, 3.19 A.M. Box 69.

North Avenue. Brick block, owned by Henderson Brothers, and occupied by them and others. Cause of fire, lighted cigar being thrown into a sawdust spittoon in tailor's shop. Loss on building and carriages of the Hendersons, \$336. Insurance on same, \$336. Loss on stock of Locke Brothers,

provisions, \$104. Insurance on same, \$104. Loss on paper and stationery, J. W. Hunnewell, \$120. Insurance on same, \$120. Loss on stock by L. C. Flanagan, druggist, \$80. Insurance on same, \$80. Loss of Patrick Kinnane, tailor, \$50. No insurance. Loss of George A. Frost, artist, \$50. No insurance. Apparatus present: Engines 1, 4, and 5, and Hook and Ladder 1. Department under command of Chief Engineer Raymond.

FRIDAY, MARCH 22, 6.50 P.M. Box 25.

Green Street. Cracker-bakery, owned and occupied by Frank A. Kennedy. Loss trifling. Cause of fire, flame from gas-jet set woodwork on fire. Apparatus present: Engines 1, 2, and 5, and Hook and Ladder 1, and Supply Hose 1. Department under command of Chief Engineer Raymond.

APRIL.

MONDAY, APRIL 1, 1.10 P.M. Box 17.

Main Street. Tenement block, owned by G. M. Rogers, and occupied by several parties. No loss. Cause of fire, kindling-wood placed too near to stove. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 1 and 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

WEDNESDAY, APRIL 3, 1.23 P.M. Box 92.

Carson Street. Tenement-house, owned by Michael Quinn, and occupied by several families. Cause of fire, accidental burning of wearing apparel. Loss on building, \$9.95. Insurance on same, \$9.95. Loss on apparel, \$5. No insurance. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

SATURDAY, APRIL 6, 3 A.M. (Still. Bell-alarm in Ward Five only.)

Somerville. Fire in Somerville, to which Engine No. 4 responded, under command of Assistant Engineer Bunker.

SATURDAY, APRIL 6, 1.15 A.M. (Still.)

Somerville. Fire in Somerville, to which No. 5 responded, under command of Capt. Scanlan, foreman of the company.

SATURDAY, APRIL 6, 4.46 P.M. Box 6.

Third Street. Boston Stamping Works, owned and occupied by Seavey & Co. No loss by fire. Cause of alarm, boiler explosion, by which three lives were sacrificed (mentioned elsewhere). Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 1 and 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

TUESDAY, APRIL 9, 9.30 A.M. Box 36.

Essex Street. Dwelling-house, owned by Hart & Taylor, and occupied by several families. Cause of fire, defective chimney. Loss on building, \$325. Insurance on same, \$325. Loss to E. P. Cutter, \$467. Insurance, \$467. Loss to Charles Greco, \$100. Insurance, \$75. Loss to Messrs. Winthrop and Lombard, trifling. Apparatus present: Engines 1, 2, and 5, and Hook and Ladder 1 and 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

WEDNESDAY, APRIL 17, 7.32 P.M. Box 82.

Brattle Street. Box 82. False alarm, given by some unknown person. Apparatus present: Engines 1, 4, and 5, and Hook and Ladder 1, and Supply Hose 1. Department under command of Chief Engineer Raymond.

WEDNESDAY, APRIL 17, 9.40 P.M. Box 48.

Tremont Street. Dwelling-house, owned and occupied by Daniel M. Hazen. Loss trifling. Cause of fire, defective chimney. Apparatus present: Engines 1, 2, and 5, and Hook and Ladder 1 and 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

MONDAY, APRIL 22, 8.07 P.M. Box 16.

Harvard Street. Small shed, owned by James Garrity, for the storage of building-moving materials. Cause of fire, probably incendiary. Loss on building and contents, \$25. No insurance. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 1 and 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

MAY.

WEDNESDAY, MAY 1, 10.14 A.M. Box 51.

Broadway. Dwelling-house, owned and occupied by Owen Martin. No loss. Cause of fire, placing wood in stove-oven to dry. Apparatus present: Engines 1, 2, and 5, and Hook and Ladder 1, and Supply Hose 1. Department under command of Chief Engineer Raymond.

THURSDAY, MAY 16, 12.04 A.M. Box 9.

First Street. Box-factory building, owned by Nancy D. Woodbury, and occupied by W. H. Hazlett & Co., box-makers. No loss. Cause of fire, probably incendiary. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

SUNDAY, MAY 19, 1 P.M. (Still. Bell-alarm in Ward One only.)

Kirkland Street. Pile of empty boxes belonging to Harvard College, in rear of Scientific School. Loss trifling. Cause of fire, mischievousness of boys. Apparatus present: Engine 1, under command of Assistant Engineer Brackett.

TUESDAY, MAY 21, 1.30 A.M. Box 9.

Cambridge Street. Blacksmith's shop, owned by Owen Kennerson, and occupied by Dormer & Prebeck. No loss. Cause of fire, sparks from forge in shop-sweepings. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

FRIDAY, MAY 31, 4.03 P.M. Box 9.

Cambridge Street. Dwelling-house, owned by Alpheus Stetson, and occupied by several families. No loss. Cause of fire, floor-timber passing through chimney-flue. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

FRIDAY, MAY 31, 9.15 P.M. BOXES 8 AND 9. (Two alarms were given for this fire, calling for additional apparatus.)

Thorndike Street. Picture frame and mouldings building, owned by Charles W. Munroe, and occupied by G. A. Denham & Co. Cause of fire, probably incendiary. Loss on building, \$1,054.40. Insurance on same, \$1,054.40. Loss on stock, \$2,668.24. Insurance on same, \$2,668.24. Apparatus present: Engines 1, 2, 3, and 5, and Hook and Ladder 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

JUNE.

THURSDAY, JUNE 6, 8.12 P.M. Box 17.

Washington Street. Tenement block, owned by G. M. Rogers, and occupied by several families. No loss. Cause of fire, explosion of kerosene-lamp. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 1 and 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

SUNDAY, JUNE 16, 10.35 P.M. Box 31. (Three alarms were given for this fire.)

Somerville. The burning of a large pork-packing establishment caused alarms to be given in this city. The entire department was sent to render assistance.

FRIDAY, JUNE 21, 6.52 P.M. Box 6.

Main Street. Storehouse and stable building, owned by M. Day & Co., drain-pipe manufacturers. Cause of fire attributed to boys. Loss on building, patterns, &c., \$61.60. Insurance on same, 61.60. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 1 and 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

SUNDAY, JUNE 30, 1.59 P.M. Box 13.

Cambridge Street. Dwelling-house, owned and occupied by Ruel H. Fletcher. Cause of fire, children playing with matches. Loss on building and furniture, \$20. Insurance on same, \$20. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

JULY.

FRIDAY, JULY 5, 3.48 P.M. Box 45.

Franklin Street. Small building on premises owned by the city. No loss. Cause of fire, small quantity of hay set on fire by children. Apparatus present: Engines 1, 2, and 5, and Hook and Ladder 1, and Supply Hose 1. Department under command of Chief Engineer Raymond.

FRIDAY, JULY 5, 10.30 P.M. Box 7.

Charles Street. Dwelling-house owned by Mrs. Murphy, and occupied by her and others. No loss. Cause of fire, explosion of kerosene-lamp. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

TUESDAY, JULY 9, 6.08 A.M. Box 32.

Elm Street. Dwelling-house, owned by Boston Five-Cents Savings Bank, and occupied by M. Dechan. Loss trifling. Cause of fire, using kerosene-oil to kindle a fire. Apparatus present: Engines 2, 3, and 5, Hook and Ladder 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

WEDNESDAY, JULY 10, 3.08 A.M. Box 21.

Waverley Street. Rendering and oil factory, owned and occupied by John Reardon & Sons. Cause of fire not ascertained. Loss on building and stock, \$22,000. Insurance on same, \$22,000. Apparatus present: Engines 1, 2, and 5, and Hook and Ladder 1, and Supply Hose 1. Department under command of Chief Engineer Raymond.

WEDNESDAY, JULY 10, 4.45 A.M. BOXES 75 AND 78.

Dublin Street. Dwelling-house, owned by Felix Cartier, and occupied by several families. Cause of fire, kerosene-oil catching fire in grocery-store

in basement. Loss on building, \$779.65. Insurance on same, \$779.65. Loss to occupants, \$150. No insurance. Apparatus present: Engines 1, 3, and 4, and Hook and Ladder 1, and Supply Hose 1. Department under command of Chief Engineer Raymond.

THURSDAY, JULY 18, 10.25 P.M. Box 75.

Raymond Street. Burning of hay-stacks, owned by P. Brogan. Loss trifling. Cause of fire, incendiarism. Apparatus present: Engines 1, 4, and 5, and Hook and Ladder 1. Department under command of Chief Engineer Raymond.

THURSDAY, JULY 25, 11.38 A.M. Box 7.

Third Street. Dwelling-house, owned by James Boyle, and occupied by several families. Cause of fire, defective chimney. Loss on building, \$25. Insurance on same, \$25. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

FRIDAY, JULY 26, 11 A.M. Box 2.

Prison-Point Street. Coal-sheds, owned and occupied by Eastern Railroad corporation. Cause of fire, spontaneous combustion in coal. Loss on building and coal, \$880.80. Insurance on same, \$880.80. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 2, and Supply Hose 1, together with portions of the Boston Department, including the Fire-Boat and the tow-boat "Osborn." Department under command of Chief Engineer Raymond.

FRIDAY, JULY 26, 4.44 P.M. Box 41.

Pleasant Street. Dover Stamping Company's Works. No loss. Cause of fire, ignition of illuminating gas, while repairing pipes. Apparatus present: Engines 1 and 4, and Hook and Ladder 1. Department under command of Assistant Engineer Bunker, in absence of Chief Engineer at railroad fire.

AUGUST.

MONDAY, AUG. 5, 9.06 P.M. Box 2.

Prison-Point Street. Car-house, owned and occupied by the Eastern Railroad corporation. Cause of fire, probably sparks from locomotive. Loss on building and cars destroyed, \$43,930. Insurance on same, \$43,930. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 2, and Supply Hose 1; also portions of the Boston Department, including the Fire and Police Boats, and the tow-boat "Osborn." Department under command of Chief Engineer Raymond.

WEDNESDAY, AUG. 7, 8.55 A.M. Box 9.

First Street. Planing-mill building, owned by Nancy D. Woodbury, and occupied by W. H. Hazlett & Co. Cause of fire, burning of shavings in shaving-room. No loss. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

THURSDAY, AUG. 8, 3.22 A.M. Box 9.

First Street. Planing-mill building, as above. Cause of fire, burning of shavings, as before. Probably incendiary. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

MONDAY, AUG. 12, 1 A.M. Box 65.

North Avenue. Dwelling-house, owned and occupied by Charles F. Goodridge. Cause of fire, floor-timber passing through ash-pit. Loss on building and furniture, \$175. Insurance on same, \$150. Apparatus present, Engines 1, 4, and 5, and Hook and Ladder 1. Department under command of Chief Engineer Raymond.

TUESDAY, AUG. 20, 10.53 P.M. Box 46.

Green Street. Dwelling-house, owned by John Connors, and occupied by several families. No loss. Cause of fire, burning of bed-filling, intentionally fired. Apparatus present, Engines 1, 2, and 4, and Hook and Ladder 1, and Supply Hose 1. Department under command of Chief Engineer Raymond.

SATURDAY, AUG. 24, 7.56 P.M. Box 26.

Main Street. Small shed, owned by Howe heirs, and occupied by Daniel Bedell, for storage of kerosene-oil. Cause of fire, maliciousness of some unknown person. Loss trifling. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 1 and 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

SEPTEMBER.

SUNDAY, SEPT. 1, 1.58 A.M. Box 9. (Two alarms were given for this fire, to call additional apparatus.)

First Street. Box-factory building, owned by Nancy D. Woodbury, and occupied by W. H. Hazlett & Co. Cause of fire, probably incendiary. Loss on building, \$764.50. Insurance on same, \$764.50. Loss on stock of Hazlett & Co., \$500. Insurance on same, \$500. Loss on machinery, owned by Woodbury & Co., \$650. Insurance on same, \$650. Apparatus present:

Engines 1, 2, 3, and 5, and Hook and Ladder 2, and Supply Hose 1. Department under command of Chief Engineer Raymond.

THURSDAY, SEPT. 19, 3.05 P.M. Box 42.

Banks Street. Dry-house building, owned by George Bancroft, and occupied by Alfred Fitzpatrick. Cause of fire, overheated pipes in dry-house. No loss. Apparatus present: Engines 1, 2, and 5, and Hook and Ladder 1, and Supply Hose 1.. Department under command of Chief Engineer Raymond.

SATURDAY, SEPT. 28, 1.23 A.M. Box 73.

Spruce Street. Unoccupied dwelling-house, owned by John Moore, who was arrested on suspicion of having set the building on fire. The grand jury failed to find a bill against him. Cause of fire, incendiary. Loss on building, \$675. Insurance on same, \$675. Apparatus present: Engines 1, 4, and 5, and Hook and Ladder 1; also Hook and Ladder from West Somerville. Department under command of Chief Engineer Raymond.

OCTOBER.

TUESDAY, OCT. 1, 9.29 P.M. Box 25.

Main Street. Paint-shop, owned and occupied by Charles A. Sawyer. Cause of fire, probably mice and matches. Loss on tools and stock, \$50. Insurance on same, \$50. Apparatus present: Engines 1, 2, and 5, and Hook and Ladder 1, and Supply Hose 1. Department under command of Chief Engineer Raymond.

MONDAY, OCT. 7, 7.25 P.M. Box 6.

Main Street. Blacksmith-shop, owned by W. G. Hawes, and occupied by J. H. Healey. No loss. Cause of fire, incendiary; for which Daniel Danby was arrested, but the grand jury failed to find a bill of indictment. Apparatus present: Engines 2, 3, and 5, and Hook and Ladder 1 and 2, and Supply Hose 1. Department under command of Assistant Engineer Casey, in the absence of the Chief Engineer, who did not reach the fire until after the engines had been ordered home.

WEDNESDAY, OCT. 9, 5.43 P.M. Box 39.

Tufts Street. Dwelling-house, owned by Edward Kendall, and occupied by several families. No loss. Cause of fire, burning of leaves set on fire by boys. Apparatus present: Engines 1, 2, and 5, and Hook and Ladder 1, and Supply Hose 1. Department under command of Chief Engineer Raymond.

NOVEMBER.

WEDNESDAY, NOV. 6, 7.35 P.M. BOX 43.

Cowperthwaite Street. Dwelling-house, owned by D. G. Haskins, and occupied by J. Allen. No loss. Cause of fire, breaking of kerosene-lamp by a small child. While proceeding to this fire, Capt. Scanlan of Engine Company No. 5 was run over by a hose-carriage, and painfully hurt (mentioned elsewhere). Apparatus present: Engines 1, 2, and 5, and Hook and Ladder 1, and Supply Hose 1. Department under command of Chief Engineer Raymond.

TUESDAY, NOV. 19, 1.53 P.M. BOX 59.

Cambridge Street. Memorial Hall building, owned and occupied by Harvard College. No loss. Cause of alarm, emission of smoke from chimney. Apparatus present: Engines 1, 2, 4, and 5, and Hook and Ladder 1, and Supply Hose 1. Department under command of Chief Engineer Raymond.

HYDRANTS.

*(Corrected list.)**Located in Ward One.*

Appleton Street, corner Highland.	Cambridge Street, front of Scientific School (post).
Ash Street, corner Acacia.	Cambridge Street, cor. Quincy (post).
Baldwin Street, corner Emmons Place.	Cambridge Street, opposite Felton (post).
Banks Street, corner Flagg.	Cambridge Street, corner Ellery (post).
Banks Street, corner Cowperthwaite.	Chauncy Street, near Garden (post).
Banks Street, corner Grant.	Chauncy Street, corner Langdon.
Bow Street, corner Linden (post).	Church Street, corner Palmer.
Brattle Street, opposite the estates of Messrs. Longfellow and Hastings.	Concord Avenue, junction Waterhouse Street.
Brattle Street, corner Ash.	Concord Avenue, corner Sparks Street.
Brattle Street, corner Hilliard.	Concord Avenue, opposite Craigie Street.
Brattle Street, corner University Press estate.	Concord Avenue, corner Follen Street (post).
Brattle Street, corner Lowell.	Concord Avenue, corner Sparks Street (post).
Brattle Street, corner Fresh Pond Lane.	Coolidge Avenue, between Mount Auburn Street and Cambridge Cemetery Gate (2 posts).
Brattle Street, opposite Mount Auburn greenhouse.	Craigie Street, midway.
Brattle Street, front of Mrs. Wyeth's estate.	Craigie Street, near corner Sparks.
Brattle Street, corner Willard.	De Wolf Street, near Cowperthwaite.
Brattle Street, corner Story.	Divinity Avenue, opposite Museum.
Brattle Street, corner Channing.	Dunster Street, corner South.
Brattle Street, corner Lakeview Avenue.	Dunster Street, corner Mount Auburn.
Brattle Street, cor. Hawthorne (post).	Dunster Street, near Harvard Square (post).
Brattle Street, near Brighton (post).	Eliot Street, in elbow (post).
Brighton Street, cor. Winthrop (post).	Eliot Street, corner Winthrop (post).
Brighton Street, corner Eliot (post).	Ellery Street, corner Main.
Broadway, junction Cambridge Street.	Ellery Street, east side, midway between Broadway and Cambridge Street.
Broadway, near junction Cambridge Street (post).	Elmwood Avenue, midway (post).
Broadway, corner Prescott Street.	Everett Street, south side, midway between North Avenue and Oxford Street.
Broadway, corner Trowbridge Street.	Fayerweather Street, corner Brattle.
Broadway, corner Quincy Street.	Fayerweather Street, opposite Reservoir.
Broadway, corner Ware Street.	
Broadway, corner Ellery Street.	
Buckingham Street, opposite Stevens's barn.	
Buckingham Street, corner Concord Avenue (post).	
Cambridge Street, corner Trowbridge.	
Cambridge Street, corner Sumner.	

- Foster Street, corner Brown (post).
 Garden Street, near Chauncy (post).
 Garden Street, corner Mason.
 Garden Street, corner Wallace.
 Grant Street, corner De Wolf.
 Harvard Square, opposite Charles River Bank (post).
 Harvard Street, corner Remington.
 Harvard Street, opposite Harvard Block.
 Harvard Street, opposite Linden (post).
 Harvard College Grounds (3 posts).
 Hawthorne Street, cor. Acacia (post).
 Kirkland Street, near Baldwin, south side.
 Kirkland Street, corner Trowbridge, south side.
 Kirkland Street, cor. Irving, south side.
 Kirkland Street, corner Sumner, south side.
 Kirkland Street, corner Quincy, south side.
 Kirkland Street, opposite Memorial Hall.
 Lakeview Avenue, 500 feet from Brattle Street.
 Lakeview Avenue, near Brattle Street (post).
 Lakeview Avenue, corner Huron Street (post).
 Lakeview Avenue, on hill (post).
 Lakeview Avenue, near Engine House (post).
 Langdon Street, in elbow (post).
 Main Street, junction Harvard.
 Main Street, corner Trowbridge.
 Main Street, near Baptist Church.
 Mellen Street, corner Oxford.
 Mill Street, corner Holyoke (post).
 Mill Street, corner Charles River.
 Mt. Auburn Street, corner Brighton (post).
 Mt. Auburn Street, corner Brewer.
 Mt. Auburn Street, opposite Athens.
 Mt. Auburn and Bow Streets.
 Mt. Auburn Street, opposite De Wolf.
 Mt. Auburn Street, corner Willard (post).
 Mt. Auburn Street, cor. Sparks (post).
 Mt. Auburn Street, opposite McDou-
 ald's Marble Works.
- Mt. Auburn Street, near railroad-stables, in Belmont.
 Mt. Auburn Street, near Lowell (post).
 Mt. Auburn Street, corner Dunster (post).
 Mt. Auburn Street, cor. Holyoke (post).
 Mt. Auburn Street, cor. Athens (post).
 Mt. Auburn Street, cor. Banks (post).
 Mt. Auburn Street, corner De Wolf (post).
 Mt. Auburn Street, cor. Story (post).
 Mt. Auburn Street, corner Hilliard (post).
 Mt. Auburn Street, opposite City Building (post).
 Mt. Auburn Street, near car-stables, in Belmont (post).
 Mt. Auburn Street, opposite Brewer (post).
 Mt. Auburn Street, opposite Bath (post).
 Mt. Auburn Street, near Coolidge Lane (post).
 Mt. Auburn Street, corner Elmwood Avenue (post).
 Mt. Auburn Street, corner Channing (post).
 Murray Street, near Charles River.
 North Avenue, corner Chauncy Street.
 North Avenue, corner Shepard Street (post).
 North Avenue, corner Holmes Place.
 North Avenue, corner Jarvis Street.
 North Avenue, front of burial-ground (post).
 North Avenue, corner Church Street.
 North Avenue, corner Garden Street (post).
 Oxford Street, near Jarvis.
 Oxford Street, corner Everett.
 Phillips Place, corner Berkeley Street.
 Prescott Street, corner Harvard.
 Prescott Street, between Harvard Street and Broadway (post).
 Putnam Avenue, cor. Western Avenue.
 Putnam Avenue, between Mt. Auburn and Main (post).
 Putnam Avenue, corner Flagg Street (post).
 Putnam Avenue, opposite Putnam Court (post).

Putnam Avenue, near Hews Street (post).	Sparks Street, opposite Charles T. Russell's.
Putnam Avenue, corner Sands Street (post).	Trowbridge Street, midway between Main and Harvard (post).
Quincy Street, midway between Harvard and Broadway (post).	Waterhouse Street, opposite Follen (post).
Sands Street, opposite Planing Mill.	Wendell Street, near Carver (post).
South Street, corner Dunster (post).	Willard Street, corner Foster (post).
Sparks Street, cor. Vassal Lane (post).	Worthington Street, near Engine-house Water-works (post).
Sparks Street, corner Foster (post).	

Located in Ward Two.

Amory Street, corner Summer.	Cambridge Street, corner Willow.
Antrim Street, near Broadway.	Cambridge Street, cor. Prospect (post).
Antrim Street, near Cambridge (post).	Cambridge Street, corner Tremont.
Antrim Street, midway (post).	Cambridge Street, opposite Fayette.
Austin Street, corner Essex (post).	Cambridge Street, north side, near Springfield.
Austin Street, corner Prospect (post).	Cambridge Street, opposite head of Maple Avenue.
Austin Street, corner Temple (post).	Cambridge Street, cor. McCabe (post).
Bigelow Street, midway between Main and Harvard.	Cambridge Street, corner Elm (post).
Brewery Street, near Hastings (post).	Cambridge Street, cor. Winsor (post).
Bristol Street, corner Portland (post).	Cambridge Street, near Mr. Rafferty's house (post).
Broadway, corner Highland Avenue.	Cambridge Street, nearly opposite Ellsworth Avenue (post).
Broadway, corner Third Street.	Centre Street, opp. Dana Schoolhouse.
Broadway, corner Hancock Street.	Clinton Street, near G. T. Gale's house (post).
Broadway, corner Antrim Street.	Columbia Street, corner Lincoln.
Broadway, corner Tremont Street (post).	Columbia Street, corner Market.
Broadway, corner Elm Street.	Columbia Street, corner Hampshire.
Broadway, corner Dock Street.	Columbia Street, corner Harvard.
Broadway, corner Dana Street.	Dana Street, corner Chatham (post).
Broadway, corner Ellsworth Avenue.	Davis Street, corner Broadway.
Broadway, corner Fayette Street.	Elm Street, opposite Lincoln (post).
Broadway, corner Amory Street.	Elm Street, corner Market.
Broadway, corner Norfolk Street.	Essex Street, westerly side, midway between Harvard and Austin (post).
Broadway, corner Boardman Street.	Fayette Street, 500 feet from Broadway.
Broadway, opposite Thayer's Laboratory.	Hampshire Street, cor. Amory (post).
Broadway, near Broadway House.	Hampshire Street, near Somerville line (post).
Broadway, corner Clark Street (post).	Hampshire Street, cor. Portland (post).
Broadway, corner Third Street (post).	Harvard Street, corner Pine.
Broadway, corner Davis Street (post).	Harvard Street, corner Hancock.
Broadway, corner Brewery Street (post).	Harvard Street, corner Clark.
Broadway, opposite Mason & Hamlin's building (post).	Harvard Street, corner Dana.
Broadway, near Sixth Street (post).	Harvard Street, corner Moore.
Broadway, cor. Pioneer Street (post).	Harvard Street, corner Norfolk.
Cambridge Street, corner Harding.	
Cambridge Street, corner Norfolk.	

Harvard Street, corner Portland.	Moore Street, head of Hastings.
Harvard Street, corner Brewery.	Norfolk Street, corner Hampshire.
Harvard Street, corner Clinton.	Norfolk Street, corner Worcester.
Harvard Street, near R.R. crossing (post).	Norfolk Street, head of Washington (post).
Harvard Street, between R.R. crossing and Brewery Street (post).	Oak Street, west side, near Somerville line.
Harvard Street, opposite Davis (post).	Plymouth Street, corner York.
Harvard Street, corner Cherry (post).	Portland Street, opposite Rolling-Mill (post).
Harvard Street, corner Winsor (post).	Prospect Street, opposite B. Tilton's.
Harvard Street, opposite Elm (post).	Prospect Street, corner Broadway.
Harvard Street, corner Essex (post).	Prospect Street, corner Hampshire.
Harvard Street, corner Prospect (post).	Prospect Street, corner Main.
Harvard Street, between Prospect and Inman Streets (post).	Prospect Street, corner Gardner.
Harvard Street, corner Bigelow (post).	Prospect Street, opposite schoolhouse, Somerville.
Harvard Street, corner Lee (post).	Prospect Street, cor. Webster Avenue, Somerville.
Highland Avenue, east side, midway.	Seckel Street, corner Webster Avenue, (post).
Houghton Street, corner Bolton, in Somerville.	South Street, opposite Willow, Somer- ville.
Hunting Street, 400 feet from Cam- bridge.	South Street, corner Gore, Somerville.
Inman Street, near Austin.	Tremont Street, near Wellington's house (post).
Inman Street, corner Harvard.	Tremont Street, near Hampshire (post).
Inman Street, corner Broadway.	Tremont Street, opposite Gardner (post).
Inman Street, corner Summer.	Union Street, corner Hampshire.
Jefferson Street, corner Harding.	Ward Street, cor. Horace, Somerville.
Jefferson Street, corner Warren (post).	Webster Avenue, corner Elm.
Lee Street, midway between Main and Harvard Streets (post).	Webster Avenue, corner Bristol.
Main Street, corner Lee.	Webster Avenue, corner Winsor.
Main Street, corner Hancock.	Webster Avenue, corner Hampshire.
Main Street, opposite Bay.	Webster Avenue, corner Plymouth.
Main Street, corner Pelham (post).	Webster Avenue, cor. Cambridge Street (post).
Main Street, corner Essex.	West Boston Bridge.
Main Street, opposite Pleasant.	West Boston Bridge.
Main Street, corner Bigelow.	West Street, midway (post).
Main Street, junction Harvard.	Winsor Street, corner Lincoln.
Main Street, corner Pioneer (post).	Winsor Street, corner Hampshire.
Main Street, opposite Rawson & Hit- tinger's.	Winsor Street, corner Washington.
Main Street, opposite Pearl (post).	Winsor Street, near Somerville line (post).
Main Street, Gale & Wood's driveway (post).	Winsor Street, corner Broadway (post).
Maple Avenue, midway between Broad- way and Cambridge Street.	
Market Street, corner Union.	

Located in Ward Three.

Bridge Street, at Wellington's Wharf (post).	Gore Street, corner Seventh (post).
Bridge Street, at Sanborn's Wharf (post).	Gore Street, between Fourth and Fifth (post).
Bridge Street, corner Prison Point.	Gore Street, bet. Fifth and Sixth (post).
Bridge Street, corner Short.	Munroe Street, corner Third (post).
Bridge Street, corner Short (post).	North Street, corner East.
Bridge Street, corner Water.	North Street, near Glass Company's cutting-shop.
Bridge Street, opposite Bay State Glass-house.	Otis Street, corner First.
Bridge Street, near Bay State Glass-house (post).	Otis Street, corner Third.
Bridge Street, north side, opposite Braman, Shaw, & Co.'s.	Otis Street, corner Seventh.
Bridge Street, opposite Fourth (post).	Otis Street, corner Ninth.
Bridge Street, between Short and Water (post).	Potter Street, corner Ninth (post).
Bridge Street, near Cambridge (post).	Prison-Point Street, 50 feet north of Ice Sheds.
Bridge Street, corner Water (post).	Prison-Point Street, on railroad track, 300 feet from street.
Bridge Street, corner East (post).	Prison-Point Street, near passenger track (post).
Cambridge Street, opposite First.	Prison-Point Street, on railroad track, 600 feet from street.
Cambridge Street, corner Carson.	Prison-Point Street, 400 feet from Bridge Street.
Cambridge Street, corner Daily's Alley.	Prison-Point Street, near Bridge (post).
Cambridge Street, corner Third.	Prison-Point Street, near Ice House (post).
Cambridge Street, junction Bridge.	Second Street, corner Thorndike.
Cambridge Street, corner Sixth.	Second Street, corner Otis.
Cambridge Street, near railroad crossing (post).	Second Street, corner Cambridge.
Cambridge Street, opp. Seventh (post).	Sixth Street, corner Gore.
Cambridge Street, opp. No. 141 (post).	Sixth Street, corner Potter.
Cambridge Street, near Third (post).	Sixth Street, corner Charles (post).
Cambridge Street, corner Fourth (post).	Spring Street, corner Second.
Charles Street, corner Fourth.	Spring Street, corner Third.
East Street, corner North (post).	Spring Street, corner Fourth.
Eighth Street, corner Cambridge.	Third Street, corner Vine.
Fifth Street, corner Winter (post).	Third Street, near Charles (post).
Fifth Street, corner Charles.	Third Street, corner Bridge (post).
Fifth Street, corner Spring.	Third Street, corner Potter.
Fifth Street, corner Cambridge.	Third Street, opp. Gas-works (post).
Fifth Street, corner Gore.	Thorndike Street, corner Sixth.
First Street, corner Spring (post).	Thorndike Street, corner Fifth.
Fourth Street, corner Winter (post).	Thorndike Street, near Woodbury's mill (post).
Fourth Street, corner Winter.	Thorndike Street, corner Second (post).
Fourth Street, corner Cambridge.	Vine Street, corner Fifth.
Fourth Street, corner Vine.	Vine Street, corner Sixth.
Fourth Street, corner Thorndike.	Water Street, near Sugar-house.
Gore Street, corner Fourth.	Yard of J. P. Squire & Co. (post).
Gore Street, corner Carson (post).	
Gore Street, corner Carson.	

Located in Ward Four.

Austin Street, corner Douglass (post).	Kinnaird Street, corner Bay (post).
Austin Street, corner Norfolk (post).	Magazine Street, corner Cottage.
Blackstone Street, west side, 100 feet from avenue (post).	Magazine Street, cor. Putnam Avenue.
Brookline Street, corner Allston.	Magazine Street, corner Warland.
Brookline Street, corner Hamilton.	Magazine Street, corner Auburn.
Brookline Street, corner Valentine.	Magazine Street, corner Park.
Brookline Street, cor. Putnam Avenue.	Magazine Street, corner Upton.
Brookline Street, corner Erie.	Magazine Street, opposite Hamilton.
Brookline Street, corner Franklin.	Magazine Street, opposite Allston (post).
Brookline Street, corner Chestnut.	Magazine Street, corner Florence.
Brookline Street, near Henry (post).	Magazine Street, corner Green (post).
Brookline Street, corner Decatur (post).	Main Street, corner Harrison (post).
Brookline Street, corner Lopez (post).	Main Street, corner Columbia.
Brookline Street, corner Watson (post).	Main Street, corner Winsor.
Cherry Street, opposite Eaton.	Main Street, corner Norfolk.
Chestnut Street, corner Pearl.	Main Street, junction Austin.
Columbia Street, corner Austin.	Main Street, north side, opposite Kennedy's bakery.
Columbia Street, cor. Washington.	Main Street, corner Washington.
Cottage Street, corner Pearl (post).	Main Street, corner Brewery.
Eaton Street, corner Pine (post).	Main Street, corner Portland.
Erie Street, corner Pearl (post).	Osborn Street, corner State (post).
Erie Street, between Pearl and Brookline (post).	Osborn Street, corner Main (post).
Fairmont Street, corner Andrew (post).	Pacific Street, corner Sydney.
Franklin Street, corner Soden (post).	Pacific Street, near Albany.
Franklin Street, corner Hancock.	Pearl Street, corner Lake.
Franklin Street, corner Bay.	Pearl Street, corner Allston (post).
Franklin Street, near the hill.	Pearl Street, corner Putnam Avenue.
Franklin Street, corner Sydney.	Pearl Street, corner Decatur.
Franklin Street, corner Magazine.	Pearl Street, corner Auburn.
Franklin Street, corner Pleasant.	Pleasant Street, corner Florence (post).
Franklin Street, near Putnam Avenue (post).	Pleasant Street, corner Upton.
Front Street, junction State.	Pleasant Street, corner Somerset.
Front Street, corner Columbia (post).	Pleasant Street, corner Park.
Green Street, opposite Vernon.	Pleasant Street, corner Prince.
Green Street, corner Putnam Avenue.	Pleasant Street, corner Pleasant Place (post).
Green Street, corner Hancock (post).	Pleasant Street, corner Chestnut.
Green Street, corner Bay (post).	Pleasant Street, corner Franklin (post).
Green Street, midway between Hancock and Vernon (post).	Portland Street, corner Main (post).
Green Street, corner Vernon (post).	Putnam Avenue, opposite Ballard Place (post).
Green Street, corner Pleasant (post).	Putnam Avenue, near River Street (post).
Green Street, corner Western Avenue (post).	Putnam Avenue, corner River Street (post).
Green Street, corner Pearl (post).	Putnam Avenue, corner Walnut Court (post).
Green Street, corner Brookline (post).	
Hewes Street, corner Putnam Avenue.	

Putnam Avenue, corner Pleasant (post).	Sydney Street, corner Green (post).
Putnam Avenue, between River and Pleasant Streets (post).	Soden Street, corner Western Avenue.
River Street, corner Franklin.	Somerset Street, corner Andrew (post).
River Street, opposite Cottage.	State Street, opposite Village (post).
River Street, opposite Laurel.	State Street, near Howe's Factory (post).
River Street, corner Blackstone.	Washington Street, cor. Brewery (post).
River Street, opposite Fairmont.	Washington Street, corner Clark.
School Street, corner Clark.	Washington Street, corner Portland (post).
School Street, corner Portland (post).	Washington Street, cor. Moore (post).
School Street, corner Clark (post).	Waverley Street, opposite Willard's.
School Street, corner Moore (post).	Western Avenue, cor. Howard Street.
Sydney Street, corner Allston.	Western Avenue, cor. Kinnaird Street.
Sydney Street, corner Putnam Avenue.	Western Avenue, corner Jay Street.
Sydney Street, corner Chestnut.	William Street, between Magazine and River Streets (post).
Sydney Street, corner State (post).	

Located in Ward Five.

Arlington Street, 500 feet from North Avenue (post).	Hubbard Avenue, corner Raymond Street.
Beech Street, east side, 20 feet from Orchard.	Lambert Avenue, corner Walnut Avenue (post).
Belmont Street, corner Montgomery (post).	Lambert Avenue, corner North Avenue (post).
Cedar Street, corner Spruce.	Linnæan Street, corner Avon.
Cedar Street, opposite Norris.	Linnæan Street, corner Bowdoin.
Cedar Street, opposite Hotel.	Linnæan Street, corner Raymond.
Concord Avenue, cor. Madison Street.	Milk Street, corner White.
Concord Avenue, opposite Bond Street.	Milk Street, near Somerville line (post).
Concord Avenue, cor. Walden Street.	Montgomery Street, 300 feet from Harvey (post).
Concord Avenue, opposite Eames's estate (post).	Mt. Vernon Street, corner North Avenue (post).
Cogswell Avenue, corner Mead Street.	North Avenue, near Railroad Bridge.
Crescent Street, corner Sacramento (post).	North Avenue, cor. Cogswell Avenue.
Donnell Street, corner Garden.	North Avenue, corner Allen Street.
Dublin Street, 525 feet from Spruce.	North Avenue, corner Dover Street.
Dublin Street, 620 feet from Walden.	North Avenue, 300 feet west of Tannery.
Dublin Street, corner Walden.	North Avenue, cor. Sacramento Street.
Dublin Street, corner Sargent.	North Avenue, opposite Linnæan Street.
Dublin Street, corner Railroad.	North Avenue, corner Chester Street.
Fairfield Street, opposite Mr. Whitney's.	North Avenue, cor. Arlington Street.
Forest Street, corner Frost.	North Avenue, corner Rice Street.
Garden Court, corner Dublin.	North Avenue, corner Cedar Street.
Garden Street, opposite Bond.	North Avenue, opposite Tannery.
Harris Street, corner Forest (post).	North Avenue, near Walcott Richardson's gate.
Harvey Street, opposite Montgomery.	
Hollis Street, in the elbow.	
Hubbard Avenue, opposite brick block.	

North Avenue, corner Beech.	Richdale Avenue, near Raymond
North Avenue, corner Frank Street (post).	Street (post).
North Avenue, corner Day Street.	Roseland Street, corner Frost.
North Avenue, near Blake's black- smith-shop (post).	Shepard Street, corner Avon.
Norton Street, midway.	Spruce Street, corner Hollis.
Orchard Street, near Davenport (post).	Spruce Street, corner Jackson (post).
Orchard Street, opposite Tenney Court.	Spruce Street, corner Reed.
Oxford Street, corner Forest.	Spruce Street, corner Montgomery.
Oxford Street, opposite Eustis Court.	Spruce Street, corner North Avenue.
Oxford Street, corner Sacramento.	Spruce Street, opposite schoolhouse.
Pemberton Street, 500 feet from North Avenue (post).	Spruce Street, corner Clay.
Pemberton Street, cor. Fairfield (post).	Spruce Street, corner Clifton.
Raymond Street, south side, near Mr. Dresser's estate (2).	Tannery Street (3), between North Avenue and Almshouse (posts).
Reed Street, 250 feet from Harvey.	Tuttle Street, opposite Ladd's barn.
Reed Street, opposite schoolhouse.	Walden Street, corner Mead.
Rice Street, opposite L. L. Cushing's.	Walden Street, cor. Hubbard Avenue.
Richdale Avenue, corner Raymond Street.	Wallace Street, in the elbow.
	Washington Avenue, corner Dexter.
	Washington Avenue, corner Foxcroft Street.
	Wyeth Street, corner Garden.

RESERVOIRS.

Located in Ward One.

Bow Street, centre of square.	Garden Street, north end of Appian Way.
Brighton Street, corner Eliot.	Junction Garden Street and Concord Avenue, opposite Arsenal.
Cambridge Street, corner Felton.	Mt. Auburn Street, opposite the church.
College Yard.	

Located in Ward Two.

Broadway, head of Tremont.	Harvard Street, corner Prospect.
Cambridge Street, corner Webster Avenue.	Main Street, junction Broadway.
Essex Street, corner Austin.	Norfolk Street, midway between Broadway and Hampshire.
Harvard Street, opposite burial-ground.	Prospect Street, 175 feet north of Broadway.
Harvard Street, head of Cherry.	Washington Street, corner Cherry.
Harvard Street, corner Davis.	

Located in Ward Three.

Cambridge Street, 70 feet east of Third.	Otis Street, corner Fourth.
Gore Street, corner North Third.	Thorndike Street, corner Third.
Junction Bridge and Gore Streets.	Under New England Glass Company's building.
New England Glass Company's Yard.	Under Lowell R. R. Machine Shop.

Located in Ward Four.

Junction Western Avenue and Pleasant Street.	Main Street, junction Western Avenue and River Street.
Lafayette Square, (2).	Pearl Street, corner Franklin.
Main Street, corner Austin.	School Street, corner Cherry.
Main Street, corner Brookline.	Washington Street, corner Pine.

Located in Ward Five.

North Avenue, near Engine House No. 4.

REPORT

OF

THE SUPERINTENDENT OF STREETS.

TO THE HONORABLE CITY COUNCIL OF THE CITY OF CAMBRIDGE:—

GENTLEMEN, — I herewith submit for your consideration a report of operations in, and matters relating to, the Street-Department for the financial year ending Nov. 30, 1878.

The appropriation for the year was:—

Street-Department (repairs)	\$60,000 00
Re-enforced by transfer from appropriation for surrendered estates	1,000 00
	\$61,000 00

Which has been expended as follows:—

Gravel	\$16,010 34
Stone	5,837 10
Labor with men and teams	27,603 74
Tools and repairing	439 49
Iron-work and repairs on teams	879 67
Hay and grain	3,439 69
Horse-doctoring	41 25
Lumber	321 18
Sign-painting	22 00
Harnesses and repairing	185 97
Horse-shoeing	673 07
Fuel	45 43
Printing	9 00

<i>Amounts carried forward</i>	\$55,507 93	\$61,000 00
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Elliott	106 53
Elm	546 65
First	379 18
Front	589 20
Franklin	690 65
Linden	66 40
Moore	146 05
Main, between Trowbridge and Quincy . .	255 91
Norfolk	623 30
North Avenue, including Rice and Davenport Sts.	4,121 39
Otis	65 60
Putnam Avenue	391 55
Plympton	208 55
Pine	227 60
River	520 45
Raymond	123 75
Sparks, Mount Auburn, and Brattle . . .	575 70
Sparks, Brattle to Concord Avenue . . .	571 59
Thorndike	200 55
Third	3,405 05
Valentine	874 53
Willard	148 40
Wyeth	297 75

The streets of our city are in general good condition. Main Street will require a considerable expenditure the coming season to put it in good order, also Cambridge Street, Broadway, and a portion of North Avenue; and the streets in general must be repaired.

I would recommend an appropriation of \$70,000.

Appropriation for paving	\$7,000 00
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Expended as follows:—

Paving	\$4,201 15
Labor with men and teams	1,465 28
Gravel	70 87
Paving-stones	764 30

<i>Amounts carried forward</i>	\$6,501 60	\$7,000 00
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<i>Amounts brought forward</i>	.	.	\$6,501 60	\$7,000 00
Sand	.	.	371 30	
Bricks	.	.	123 40	
				6,996 30
Balance unexpended	.	.	.	\$3 70

There have been 2,122 feet of new edgestones set, and 1,464 yards of new brick sidewalk laid.

As I cannot estimate the demand for new work, it is difficult to give an approximate idea of the cost of paving. To meet the demand for general care and repairs for the coming year, I would recommend an appropriation of \$9,000.

Appropriation for construction	.	.	.	\$2,000 00
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Expended as follows :—

Labor	.	.	.	\$331 65
Lumber	.	.	.	81 50
Building bulkhead	.	.	.	1,245 80
Hardware	.	.	.	38 37
Iron-work	.	.	.	74 50
Land for Cambridge Street	.	.	.	201 25
Painting	.	.	.	24 50
Advertising	.	.	.	2 00
				1,999 57

Balance unexpended	.	.	.	\$43
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Appropriation for bridges	.	.	.	\$6,000 00
Transferred from surrendered estates	.	.	.	700 00
				\$6,700 00

Expended as follows :—

Lumber	.	.	.	\$218 30
Advertising	.	.	.	29 80
Labor	.	.	.	2,781 78
Iron-work	.	.	.	108 37
Hardware	.	.	.	22 80
<i>Amounts carried forward</i>	.	.	\$3,161,05	\$6,700 00

<i>Amounts brought forward</i>	.	.	\$3,161 05	\$6,700 00
Building fence	.	.	45 00	
Painting fence	.	.	23 00	
Rebuilding Great Bridge	.	.	1,183 00	
Rebuilding River-street Bridge	.	.	2,279 00	
Stone-work	.	.	6 50	
				6,697 55
Balance unexpended	.	.	.	\$2 45

The Cambridge Great Bridge has been rebuilt at a cost of \$1,229.40, and is now in thorough order.

River-street Bridge has undergone extensive repairs at a cost of \$2,529.25, and is also in good order.

Brookline Bridge has been replanked this year at a cost of \$312.25.

Sixth-street Bridge, and a part of the bridge on North Avenue at Cambridge Station over the Fitchburg Railroad, will require replanking the coming season; and I would recommend an appropriation of \$3,500 as being needed for the care and repair of the bridges.

Schedule of Property belonging to Street-Department.

Utensils for work on streets	.	.	.	.	\$494 00
24 horses	.	.	.	.	6,600 00
6 double harnesses	.	.	.	.	300 00
3 wagon	"	.	.	.	100 00
14 chain	"	.	.	.	280 00
10 saddles	.	.	.	.	200 00
28 collars	.	.	.	.	112 00
17 carts	.	.	.	.	1,725 00
1 caravan	.	.	.	.	150 00
1 set runners	.	.	.	.	75 00
1 plow	.	.	.	.	5 00
Stable furniture and supplies	.	.	.	.	40 00
12 Snow-plows	.	.	.	.	300 00
Stone-crusher and steam-engine	.	.	.	.	4,000 00
5 Street-rollers	.	.	.	.	1,350 00
<i>Amount carried forward</i>	.	.	.	.	\$15,731 00

<i>Amount brought forward</i>	.	.	.	.	.	.	.	\$15,731 00
5 sleds	.	.	.	.	.	.	.	350 00
1 wagon	.	.	.	.	.	.	.	50 00
2,500 bricks	.	.	.	.	.	.	.	25 00
180 yards cracked stone	.	.	.	.	.	.	.	360 00
Stone for cracking	.	.	.	.	.	.	.	300 00
Railroad track on Cambridge Street	.	.	.	.	.	.	.	600 00
3 express wagons	.	.	.	.	.	.	.	300 00
Lot of round and square paving-stones	.	.	.	.	.	.	.	220 00
Lot of edge-stones and corners	.	.	.	.	.	.	.	185 00

\$18,121 00

Respectfully submitted,

S. P. SHEPHERD, *Superintendent of Streets.*

REPORT

OF

THE CHIEF OF POLICE.

OFFICE OF THE CHIEF OF POLICE,
CAMBRIDGE, December, 1878.

TO HIS HONOR THE MAYOR, AND THE CITY COUNCIL :—

I herewith present a report of the condition, and a brief synopsis of the work, of the Police-Department for the year ending Nov. 30, 1878.

The force, as now organized, consists of sixty men as follows :—

- 1 Chief of Police.
- 3 Captains of day police.
- 1 Captain of night police.
- 6 Sergeants.
- 1 Special officer at headquarters.
- 48 Patrolmen.

At the beginning of the year three officers had been detailed for special or detective duty at headquarters. As, in my opinion, the regular officers should be held responsible for the enforcement of the statute laws and city ordinances on their regular routes, and as the practical experience gained by occasionally working up difficult cases is of great advantage to them as officers, and adds to the general efficiency of the force, I decided to reduce the number to one, and detailed officer Charles B. Jones for that duty, who has performed it in a creditable and satisfactory manner. It has also been the further duty of this officer, to look after persons doing business who are required by ordinance to obtain licenses from the Board of Mayor and Aldermen.

The following table shows the number of such licenses granted, and the amount of fees received by the city therefor:—

BUSINESS.	No. of Licenses granted.	Fee paid by each.	Amount re- ceived.
Junk and grease collectors	90	\$5 00	\$450 00
Billiard-saloons	6	2 00	12 00
Sippio-tables	10	2 00	20 00
Intelligence-offices	2	2 00	4 00
Junk-stores	7	2 00	14 00
Second-hand goods	16	2 00	32 00
Pawnbrokers	2	2 00	4 00
Carriage and wagon stands	30	2 00	60 00
Total	.	.	\$596 00

Early in the year a new code of rules and regulations for the government of the Department was adopted by the Board of Mayor and Aldermen, the enforcement of which has materially increased the discipline, and added to the efficiency of the force. These rules have been conformed to generally; and the result has been, that the work of the department has been performed promptly and systematically. Each officer has been furnished with a copy of the rules, which he is required to have in his possession at all times; and it has been made a part of his duty, that he shall thoroughly familiarize himself with them. Among the most important of these rules is the one relating to the qualifications necessary for a person to have in order to become eligible as a member of the department. He must “be a citizen of the United States, a resident of Cambridge, and have paid taxes there for three years next preceding his appointment; not under twenty-five nor over forty years of age when first appointed, and not less than five feet and seven inches in height. He must be of sound health, unquestionable energy and courage, of temperate and industrious habits, of peaceable and courteous manners, respectful to superiors, and prompt and decided in action.” They also provide that “the city physician when requested by the Mayor, Board of Aldermen, or Chief of Police, shall examine and report on the physical condition of candidates for police-officers.”

The office held by a policeman is a responsible one; and, when

appointments are made, great care should be taken that none but persons who are mentally and physically qualified are selected, — men who are ready and willing to perform their duties, and capable of performing them intelligently and effectively.

In order further to perfect the discipline, and increase the efficiency of the force, I have caused the men to meet at stated times, and receive instruction in military movements. Through the efforts of Capt. Levi Hawkes, of Company B, Fourth Battalion, M.V.M., the use of the armory in the Ward Four building on Central Square has been obtained from the State authorities; and twice each month during the larger part of the year, the officers, when not on duty, have been required to practise and drill in military movements, as laid down in "Upton's School for the Soldier." Under the direction of Sergeant William Mullett, the men have attained a fair knowledge of such movements as they are often called upon to make on occasions of public parades, and which would tend to make their efforts more effective if called upon to quell riots or public disturbances when a large force is required.

The whole number of arrests for the year ending Nov. 30, 1878, was 1,312, and for the following offences:—

Abortion	2
Adultery	1
Assault and battery	162
Assault, felonious	9
Assault on an officer	13
Attempt to break and enter	2
Attempt to pass counterfeit money	1
Attempt to rescue prisoner	1
Bastardy	7
Breaking and entering.	24
Bigamy	2
Carrying concealed weapons	1
Capias	2
Common railer and brawler	1
Common drunkards	18
Cruelty to animals	5
Concerned in building a bonfire	4
Concealing stolen property	1

Drunkenness	480
Disturbing the public peace.	44
Disorderly conduct	6
Disturbing a public school	3
Disturbing a public meeting	8
Embezzlement	5
Escaped prisoners	4
False pretences	1
Fornication	5
Forgery	1
Fraud	2
Highway robbery.	2
Insane	27
Indecent exposure	2
Larceny	135
Larceny from building	11
Larceny from the person	3
Lewd and lascivious person	1
Malicious mischief	45
Malicious burning	2
Murder	1
Manslaughter	2
Noisy and disorderly house	1
Obtaining money by false pretences	3
Obstructing horse-cars.	2
Peddling without a license	12
Perjury	4
Refusing to pay car-fare	1
Receiving stolen property	4
Refusing to assist an officer	2
Robbery	3
Suspicious persons	19
Sending threatening letter	1
Stubborn children	6
Stealing a ride	2
Surety of the peace	20
Truancy	11
Vagrancy	26
Violation of the Sunday law	9
Violation of the liquor law	18

Violation of the dog law	6
Violation of city ordinances	96
Wilful trespass	20
Total number	1,312
Males	1,158
Females	154
Adults	953
Minors	359

Miscellaneous Business.

Accidents reported	39
Buildings found open, and secured	78
Complaints investigated	299
Dangerous chimneys reported	7
Defective cesspools reported	10
Defective streets and sidewalks reported	328
Defective water-pipes reported	41
Dead bodies recovered by grappling, or found	12
Disturbances suppressed	72
Fire-alarms given	12
Fires extinguished without alarm	11
Intoxicated persons assisted home	32
Lost children restored	114
Rescued from drowning	2
Sick and injured persons assisted	57
Stray teams put up	25
Street obstructions removed	75
Search-warrants served	14
Amount of property reported stolen	\$58,022 50
Amount of stolen property recovered	4,260 10

Of the amount stolen, about \$50,000 was from the Lechmere Bank, at East Cambridge, nearly all of which was recovered by the bank officials.

The whole number of lodgers accommodated at the several station-houses during the year was 2,415, of whom 2,271 were males, and 144 females.

Total cost of the Department for the year:—

Appropriation	\$67,000 00
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Expenditures:—

Services of sundry officers	\$60,125 41
Services of G. H. Copeland, Chief	494 38
Services of F. W. Hagar, “	1,455 62
Advertising	10 50
Buttons, straps, and photograph of dead body	59 80
Burying dead animals	20 06
Buggy	75 00
Care and repair of police-boat	16 00
Directories	22 50
Expressage	7 70
Fuel	457 16
Oil, matches, and insect-powder	18 45
Furniture and repairs	78 03
Gas, and use of carburetter	882 97
Hay, grain, and horse-keeping	365 78
Hardware	88 60
Harnesses and repairs	37 79
Horse and carriage hire	19 50
Horse-shoeing	94 50
Ice	28 66
Medical attendance	77 99
Printing	105 55
Supplies for prisoners	120 00
Repairs of wagons	26 05
Repairs of telegraph	76 21
Repairs at station-houses	449 04
Transportation of prisoners	17 50
Telegrams and travelling expenses of officers	21 47
Washing and cleaning stations	102 44
Water-rates	41 00

Total	\$65,395 66
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<i>Amount carried forward</i>	<i>\$65,395 66</i>
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<i>Amount brought forward</i>	\$65,395 66
Amount paid into treasury on account of services of warrants, fees, &c.	3,947 11
Balance, showing actual cost	\$61,448 55

It has been my constant aim thoroughly and impartially to enforce the license law in relation to the sale of liquors, and my subordinates have invariably seconded my efforts; the result being, as I have reason to believe, to close up the numerous places of resort where liquors are illegally sold. In those places where such business is done under a license, such a supervision has been exercised, under my direction, that each and all have been held strictly to the conditions of their licenses, resulting in the entire suppression of the Sunday trade, the sale to minors, the closing of these places at the hours specified by law, and, as I believe, a considerable decrease in the sale and consumption of intoxicating liquors in our city.

The following statement, compiled from official sources, shows the number of persons arrested for the crime of drunkenness during the last ten years in this city:—

In the year ending Nov. 30, 1869		648
“ “ “ “ “ “ 1870		816
“ “ “ “ “ “ 1871		965
“ “ “ “ “ “ 1872		768
“ “ “ “ “ “ 1873		643
“ “ “ “ “ “ 1874		849
“ “ “ “ “ “ 1875		697
“ “ “ “ “ “ 1876		599
“ “ “ “ “ “ 1877		558
“ “ “ “ “ “ 1878		498

I would respectfully recommend that two mounted patrolmen be placed on duty in districts 1 and 2. In these districts there are at present seven day-officers who are required to patrol about seventy-five miles of streets. During the summer months, more particularly in the latter part of the season, special details of men have to be made, at an increased expense of about a thousand dollars annually. In my opinion, two

mounted officers, one in each district, would lessen the expense, and cause the duty to be done more effectually. This would require the purchase of two additional horses and the equipments. This duty would be performed by men now on the regular force. I also recommend the purchase of a new police-wagon, to take the place of the small covered vehicle, which has been in use for ten years, and which is worn out.

In conclusion, I desire to express my thanks to His Honor the Mayor, and the members of the Board of Aldermen. Trusting that I have given information that will be satisfactory and acceptable, I respectfully submit my report.

FREDERICK W. HAGAR, *Chief of Police.*

REPORT

OF

THE SUPERINTENDENT OF LAMPS.

TO THE HONORABLE CITY COUNCIL OF THE CITY OF CAMBRIDGE:—

Gentlemen,—The undersigned respectfully submits his third annual report of the Department of Lighting Streets for the year ending Nov. 30, 1878.

The amount appropriated for the current year was, \$21,000 00.

The amount expended is as follows:—

For Gas	\$12,443 20
Care of lamps, and lighting	5,328 28
Repairs	280 01
Labor, pipe and fittings, Cambridge Gas Company	106 32
Glass	210 01
Posts and lanterns	30 77
Ladders	27 00
Kerosene	199 63
Matches	67 15
Alcohol	69 80
Chimneys	11 62
Burners	4 95
Carting	5 75
Painting	2 50
Putty and gas tools	5 95
Printing	4 00
<i>Amount carried forward</i>	<i>\$18,796 94</i>

<i>Amount brought forward</i>	\$18,796 94	
Superintendent's salary from Oct. 1, 1877, to Nov. 30, 1878 (14 months),	466 66	
Whole amount expended		\$19,263 60
From which deduct cash collected and paid into the City Treasury, as follows:—		
J. P. Rounds of Carlisle, Mass., dam- ages to post and lantern, Harvard Street	\$13 50	
N. D. Alexander of South Billerica, Mass., damages to post and lantern, North Avenue	10 00	
From various other parties, damages,	18 00	
		41 50
Leaving the net expenditures for the year		\$19,222 10
The balance of appropriation unex- pended is		1,736 40
		\$21,000 00

The apparent discrepancy in the amount given as the unexpended balance, in the Auditor's statement of this department, and in my own statement, arises from the fact that my statement includes all bills contracted for the year ending Nov. 30, 1878; while in the auditor's statement the November bills appear in the following year. The discrepancy, therefore, would be the difference in the amount of expenses in the month of November, 1877, and November, 1878, as follows:—

The expenses for November, 1877, were	\$2,135 40
“ “ “ “ 1878, “	1,576 27
	\$559 13
Unexpended balance, Auditor's statement	1,177 27
	\$1,736 40

On 221 nights of the past year, 331 lamps on the main streets have been kept burning all night, averaging $10\frac{1}{4}$ hours per night. On 78 nights no street-lamps have been lighted, the light from the moon being considered sufficient. On the remaining 66 nights, none of the street-lamps have been left burning after twelve o'clock.

In my last annual report I called the attention of the City Council to the darkness of the cross-streets after twelve o'clock at night, and recommended that the lamps on said streets be lighted and extinguished at the same hours as the lamps on the main streets; and I respectfully renew that recommendation.

For the information of the City Council, I herewith give names of streets and places where lamps are kept burning all night.

Main Street, 46 gas, 11 kerosene	57
Harvard Street, 34 gas, 3 kerosene	37
Broadway, 36 gas	36
Cambridge Street, 41 gas	41
Bridge Street, 18 gas	18
Third Street, 14 gas	14
Fourth Street, 1 gas, police-station	1
Prison-Point Bridge, 4 gas, 7 kerosene	11
River Street, 10 gas	10
Western Avenue, 10 gas	10
Green Street, hose-house, 1 gas	1
Mount Auburn Street, 1 gas	1
Brighton Street and Bridge, 3 gas, 4 kerosene	7
Harvard Square, 4 gas	4
Brattle Square, 4 gas	4
Holmes Place, 1 gas	1
North Avenue, 41 gas	41
Brattle Street, 24 gas	24
Concord Avenue, 5 gas	5
Garden Street, 8 gas	8
Total	331

Under the present system of lighting, the remaining 474 lamps in other locations, distributed over at least four-fifths of the city, are never left burning after twelve o'clock.

I respectfully refer the City Council to my annual report of last year for statement in regard to the Common in Ward One, and would renew my recommendation that the lamps thereon be lighted with gas.

In April last the Committee on Lamps concluded to increase the force of the department by employing two additional lighters; and the city was laid out into five districts, two men being assigned to each district. At the same time, by vote of the Committee, a reduction of fourteen per cent was made in the compensation of the men employed in the department, and the salary of the Superintendent was reduced from \$400 to \$350 per annum.

The number of lamps in the city is as follows:—

						Gas.	Kerosene.
District 1	.	.	.	.	.	158	1
2	.	.	.	.	.	144	20
3	.	.	.	.	.	147	13
4	.	.	.	.	.	153	7
5	.	.	.	.	.	132	30
						734	71
Total	.	.	.	.	.	.	805

Fifteen of the above have been added the past year, all of which were paid for by the petitioners for the location; twenty-six posts have been reset, and two, which were broken by collision with teams, have been replaced, and damages collected.

The average cost of burning gas was 6 cents per night for each lamp; for each lamp burning kerosene, $1\frac{1}{4}$ cents per night.

One source of annoyance and expense, which has heretofore been of constant occurrence, I have reason to believe has been checked, if not entirely prevented. I refer to the breaking of street-lamps by boys in the throwing of stones and other missiles. Through the exertions of the police, eight boys have been discovered and punished. By reason of the efforts of the police, and through the advice of parents and teachers, it is hoped that in the future this vicious practice will be prevented.

In the early part of the year, by request of the Gas Com-

pany, an arrangement was made for weekly returns to them of the number of lamps, and the hours of burning, on each of the ten routes; a copy of the lighter's card of instructions being sent to the superintendent of the Gas Company each month, so that he may have the opportunity of comparing the returns with the card; and the result has proved satisfactory to all parties. At the same time it was agreed that a discount of four per cent should be made on the price heretofore paid for gas, resulting in a saving to the city of from \$500 to \$600 per year. I have the pleasure of reporting a still further reduction in the price of posts and lanterns. In May, 1876, when I took charge of the department, the price was \$23. Soon after, a reduction was made to \$18.50: they can now be purchased for the use of the city for \$15.75.

In a report recently published, it is stated that "the cost of maintaining the lamp-department of Boston is more than forty dollars per year for each lamp; while New York City pays out a little over thirty dollars for each one."

The cost per lamp for our own department (Cambridge) in 1876 was \$29 per lamp; in 1877 the cost per lamp was \$26.71; in 1878 the cost per lamp was \$23.88.

The increase in the number of lamps in three years has been 77, requiring, for their maintenance alone, upwards of \$3,500. The force has been increased from six to ten men; thereby requiring a large increase of material for their use, and a closer and more laborious supervision of the department. The expenses in the same time have steadily diminished.

The appropriation for 1877 was \$24,000. The total expenses were \$21,102.75, leaving balance unexpended of \$2,897.25. The appropriation for 1878 was \$21,000, and the unexpended balance is \$1,736.40.

The reduction of expenses in this department since I took charge has been as follows:—

31½	per cent on	.	.	.	posts and lanterns.
66⅔	" " "	.	.	.	gas-burners.
78	" " "	.	.	.	lamp-post cocks.
35	" " "	.	.	.	glass.
12	" " "	.	.	.	alcohol.
70	" " "	.	.	.	kerosene-burners.

33	per	cent	on	.	.	.	kerosene-lamps.
4	"	"	"	.	.	.	gas.
36	"	"	"	.	.	.	gas-pipe.
45	"	"	"	.	.	.	gas-fittings.
14	"	"	"	.	.	.	labor.
12½	"	"	"	.	.	.	superintendent's salary.

I heartily approve the effort of the City Council for retrenchment, and, with this in view, have endeavored to reduce the expenses of this department to the lowest possible point consistent with its efficiency; and, with no unusual increase of lamps for the year 1879, the expenses ought not to exceed \$20,000.

In conclusion, I tender my acknowledgments to the Committee on Lamps for valuable advice and assistance during the past year.

Respectfully submitted,

B. F. NOURSE, *Superintendent of Lamps.*

REPORT

OF

THE COMMITTEE ON LICENSES.

THE Standing Committee on Licenses for the year 1878 herewith presents its final report.

The duty with which your Committee was charged, at the beginning of the year, has been one of the most arduous and trying nature. With very few exceptions, every petition for a license of any description, required by statute or ordinance, has been referred to this Committee for its approval; and, in order to obtain satisfactory information concerning the parties asking for licenses, it has been necessary, in most instances, that your Committee should visit and inspect the premises of such parties. Believing that the general result of its labors is a matter of considerable importance to the community, especially in its relation to the sale of intoxicating liquors, the following tables have been prepared, showing in part what has been done by the Committee during the year.

The whole number of petitions considered by your Committee was	748
Of this number there were considered a second time, after having once been acted upon, petitions for licenses of various kinds to the number of	160

The following were granted: —

Liquor-licenses	152
Inn-holders	6
Common victuallers	75
Billiards	6
Sippio-tables	12

Carriage-stands	12
Wagon-stands	23
Intelligence-offices	2
Second-hand stores	8
Second-hand furniture	11
Second-hand clothing	4
Pawnbrokers	2
Junk-stores	6
Junk-collectors	83
Grease-collectors	20
To collect birds' eggs	1
Stable for more than four horses	2
To encumber the streets while building	1

Total granted	426
-------------------------	-----

Petitions refused : —

Liquor-licenses	75
Inn-holders	2
Junk-store	1
Junk-collectors	40
Grease-collector	1
Common victuallers	33
Fruit-stands	2
To shoot birds	1
To collect birds' eggs	2
To sell fireworks	2
Plant-stand	1
Stable for more than four horses	2
Total refused	162

Total petitions	748
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The following have been revoked for violation of the conditions thereof, namely : —

Liquor-licenses	4
Common victuallers	3
Liquor-licenses forfeited	7

Total	14
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As will be observed on reference to the foregoing tables, the consideration of petitions for liquor-licenses has constituted by far the greater part of the work of the Committee.

Fully appreciating the responsibility involved in deciding upon a matter having such an important bearing upon the welfare of the community, it was determined at the outset that liquor-licenses should be given only under the most stringent conditions. A rule was recommended, and subsequently adopted by the Board of Aldermen, requiring that all persons receiving such licenses, except innholders, should on Sundays remove from the windows of their places of business all curtains and screens. In order to prevent as far as possible the illegal sale of liquor upon Sundays, it was further ordered that there should be no communication between stores where liquor was licensed to be sold, and tenements or other places of business adjoining or overhead.

The Chief of Police was instructed to maintain a vigilant supervision over all licensed places, and to prosecute every case of violation of law. Every such case reported by the Chief of Police has been impartially investigated by your Committee; and, when the fact has been established, such violation has been followed by a revocation of the license by the Board of Aldermen.

The total receipts for liquor-licenses in 1878 were	\$22,065 00
Amount paid into the State treasury	5,516 25
Net sum accruing to the city	<u>\$16,548 75</u>

The following is a comparative statement of the number of arrests for drunkenness, made by the police of this city during the last ten years; those prior to 1875 being under the operation of a prohibitory liquor law.

Arrests for Drunkenness.
Prohibitory Law.

1869	648
1870	816
1871	965
1872	768
1873	643
1874	849

License Law.

1875	.	.	.	.	.	.	.	.	697
1876	.	.	.	.	.	.	.	.	599
1877	.	.	.	.	.	.	.	.	558
1878	.	.	.	.	.	.	.	.	498

It may be mentioned as a commentary upon the foregoing report relative to drunkenness in this city during the past year, that in the city of Lynn, — whose population in 1875 was reported as 32,000, and whose city government granted no liquor-licenses in 1878, — there were 479 arrests for the same cause as above given.

The steady diminution of the number of cases of drunkenness, as shown by the records of the Police Department, cannot be otherwise than gratifying to all our citizens. While your committee inclines to the opinion that much credit for such a satisfactory showing is due to the operation of the present stringent license law, together with the hearty assistance of the Police Department in the enforcement of its provisions, other causes have had their weight in the decrease of intoxication in this city. Not the least of these has been the work performed by the temperance reformers in our midst, and your Committee is glad to bear testimony to the good results of their labors. The Committee has been desirous at all times to receive such suggestions from the friends of temperance, as might from time to time be offered, relative to licensing the sale of intoxicating liquors, and has earnestly solicited the co-operation of all citizens in the efforts it has made thoroughly to carry out the good purpose in which, it is believed, the present liquor law had its origin.

All of which is respectfully submitted.

EDWIN H. BLAKE,	} Committee on Licenses.
R. S. EDWARDS,	
SIMEON SNOW,	

REPORT

OF

THE CITY ENGINEER.

CITY OF CAMBRIDGE,
OFFICE OF THE CITY ENGINEER, Dec. 18, 1878.

TO THE HONORABLE THE CITY COUNCIL:—

Gentlemen,—In compliance with Section 8, of the City Ordinance relating to City Engineering, I herewith report the operations and expenses of that department for the year ending Nov. 30, 1878.

Streets.

No streets have been laid out or accepted during the present year. Several petitions have been presented with the required plans; but in all cases, the parties interested having failed to comply with the conditions required by the Committee on Roads and Bridges, no additions to the accepted streets have been made.

Plans showing locations of horse-railroad tracks have been filed by the Union Railway Company in River Street. A wooden bulkhead has been constructed through the mill-pond, on the northerly side of River Street, between Blackstone Street and the mill, widening the street at this point from seven to seven and a half feet.

The grade has been raised, catch-basins built, and the street put in good condition. West of the mill on the northerly side, a sea-wall has been built, the street widened ten feet to the easterly end of the bridge, and the railroad-track has been placed in the centre of the street. The bulkhead was built by contract, by Mr. John P. Perkins, and cost \$1,245.80. The sea-wall was also built by contract by Messrs. Derry and Edwards. The total cost, including pile foundation and ballasting,

was \$1,006. A claim for damages for the land taken is made by the owner, for which settlement has been made. Lines and grades of street have been furnished on seventy-five applications, from the Street Department and others.

Bridges.

West Boston, Craigie, and Prison-Point Bridges, are cared for by commissioners, and are, so far as I am aware, in good repair. The Third-street Bridge over Broad Canal is in good order. The Sixth-street Bridge will require new planking, otherwise good. The "Cambridge Great Bridge," from Old Cambridge to Brighton, has been rebuilt in a thorough and substantial manner, by Mr. Franklin A. Richardson of Boston. All the timber used in the new construction is of hard pine; the first covering of three-inch Canada white pine plank; the seams were caulked with two threads, and payed with pitch. The whole deck was then graded, and covered with a course of two-inch spruce plank, fences of white pine, and painted light drab. A crown of four inches was worked into the deck, by which the water is readily shed from it. The whole cost was \$1,205. The River-street Bridge has also been thoroughly rebuilt under a contract with Orlando W. Morrison of Boston; the earth covering was removed, and such of the old timber as was unfit for use, and built up with hard pine, covered with three-inch Canada white pine plank, caulked, pitched, and graded in the same manner as the "Great Bridge," and covered with a second course of two-inch spruce plank. A new sidewalk six feet in width was constructed on the northerly side, by extending the cross stringers over the side of the bridge, and supporting them by braces from the tops of the spur-shores. The hanging pier and draw were also repaired, and new sampson posts put in. It is to be regretted that a new bridge could not have been built of the full width of the street, — a full set of plans for which were prepared with estimates of cost, — though the repairs as made will probably carry the bridge along from eight to ten years. The widening of the street and the addition of the sidewalk is a noticeable improvement. The total cost of work on the bridge was \$2,303.50. The bridges at North Avenue and Walden Street, over the Fitchburg Railroad, are in good condition.

Sewers.

Sewers have been constructed in Howard, Somerset, Mount Vernon, Eighth, Douglass, Fourth, Hastings Square, Kirkland, and Bristol Streets, and Lexington Avenue. The length, cost of construction, and other details, will be found in the accompanying table. No extensive repairs have been required. Twenty-five new catch-basins have been built by Mr. Samuel McCulloch, to whom the contract was awarded. Those built previous to June 1 were under the old contract at \$49.99 each; those built since being at \$42.50 each. The contract for cleaning catch-basins, with Mr. John Horigan, expired May 1, 1878: the balance then due was \$1,047. The contract from May 1, 1878, to May 1, 1879, was awarded to Mr. Cornelius O'Connor, for the sum of \$1,000. At this low price he soon found that he had greatly under-estimated the work to be done, and had a losing contract. The great number of heavy showers has also added much to the amount of work needed, as compared with other years. He has, however, done his work well, as shown by a recent careful inspection of each basin. The amount paid on the contract to Nov. 30 is \$600. The total amount paid for cleaning is \$1,647. Twenty-six persons have been licensed by the Committee on Sewers and Drains, as drain-layers, and are located in the different wards of the city as follows: Ward One, four; Ward Two, ten; Ward Three, four; Ward Four, six; Ward Five, three. 199 permits have been issued to these parties, to enter private drains into the public sewers as provided by the ordinance. The additional length of sewers constructed is 2,676.3 feet, or .506 of a mile, making a total length of sewers in the city of 61.272 miles.

The appropriations were:—

For Sewers (Construction)	.	.	.	.	.	\$8,500 00
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Expended as follows:—

Sewers constructed	.	.	.	.	.	\$2,064 27
Building catch-basins	.	.	.	.	.	1,484 32
Assessments refunded, &c.	.	.	.	.	.	2,193 63
						5,742 22
Unexpended balance	.	.	.	.	.	\$2,757 78

For Sewers (Maintenance) \$9,000 00

Expended as follows : —

For cleaning catch-basins . . . \$1,647 00

For care and repairs . . . 2,148 98

3,795 98

Unexpended balance \$5,204 02

Several heavy showers have occurred at high tide, and have at these times caused inconvenience by the flooding of cellars. The Ash-street outlet is much too small for the district it has to drain, and here cellars are flooded in an ordinary rain: something should be done for relief as soon as is consistent with true economy. The district south of North Avenue, and near Cogswell Avenue, is greatly in need of drainage. A recent examination of the sewers shows them to be generally in good condition.

SEWERS CONSTRUCTED FROM DEC. 1, 1877, TO DEC. 1, 1878.

LOCATION.			CONSTRUCTION.						Total Cost.
Street.	From	To	Contractor.	Material.	Size in Inches.	Man-holes.	Inlets.	Length in Feet.	
Howard	Western Ave. . .	Near River St. . .	Samuel McCulloch . .	Portland Pipe . .	12	..	17	432.5	\$280 90
Somerset	Putnam Ave. . .	Fairmont Ave.. .	Samuel McCulloch . .	Portland Pipe . .	10	..	9	155.5	103 92
Mt. Vernon	North Ave. . . .	Westerly	Matthew Corkrey . .	Akron Pipe	12	2	40	576.6	398 13
Eighth	Otis St.	Near Thorndike . .	Timothy Murphy . .	Akron Pipe	12	..	12	162.0	94 94
Douglass	Austin St. . . .	Near Main St. . .	Samuel McCulloch . .	Portland Pipe . .	12	1	10	200.0	102 45
Fourth	Thorndike St. . .	Northerly	Matthew Corkrey . .	Portland Pipe . .	12	..	7	146.5	94 33
Hastings Square .	Chestnut St.. . .	Southerly	Samuel McCulloch . .	Portland Pipe . .	10	1	4	103.0	82 62
Bristol	Hampshire St. . .	Northerly	Timothy Murphy . .	Akron Pipe	12	1	14	199.0	125 59
Lexington Ave. .	Southerly	Worthington St. .	Timothy Murphy . .	Brick and Invert .	16 × 22	..	10	153.2	183 74
Kirkland	Oxford St. . . .	Cambridge St. . .	O. P. Roberts	Brick and Invert .	16 × 22	1	21	548.0	597 65
							6	144	\$2,064 27

Water-Works.

Early in the year a careful survey was made of Fresh Pond. Trigonometrical stations were fixed on the shore at prominent points, and permanent bounds were set for future reference. Levels for showing the topography of the adjoining shores, and soundings for the bottom of the pond, were commenced, and considerable progress was made. When it seemed that the object for which the work was being done would be accomplished in another way, the work was stopped. A new plan was made; but the topography, not being completed, has not yet been put upon it.

Plans and specifications have been prepared, from which a new stable has been erected in the pipe-yard on Auburn Street.

The retaining-wall at the foot of the slope on the easterly side of the reservoir has been rebuilt by a contract with W. C. Poland & Son. The water was partially drawn down during the progress of the work. In connection with the Cambridge Gas-Light Company, a new bridge has been constructed over the Fitchburg Railroad at North Avenue, to carry the water and gas pipes. The water-pipe had been cut off for some time previous; and a connection was thus restored, which is of great advantage to North Cambridge for fire purposes. The trusses were made of hard pine. The bridge was divided into two compartments, thus separating the gas and water pipes, lined with white-pine sheathing on the inside, and covered with corrugated iron on the outside: the spaces around the pipes were filled with charcoal. The work was done by a contract with John C. Weld, and one-half the cost paid by the Gas-Light Company. Surveys were made, and considerable work done, for a proposed sewer on the south-west side of the pond, to take the drainage of the Cushing-street district, but was abandoned for the reason before mentioned; and nothing has yet been accomplished in preventing the Cushing-street nuisance, except that the Water-Board has applied to the State Board of Health, and notified the Town of Belmont to abate it.

Wellington Brook and its branches have been examined, and found to be in about the same condition as last year.

In May last a serious leak was discovered in the reservoir.

The water was at once drawn down; and, at the request of the Committee on Reservoirs and Pumping, I made a careful examination, and submitted a written report with plan and recommendations for repairs. It was thought of enough importance to employ a consulting engineer, and Mr. Thomas Doane of Charlestown was chosen: he also made an examination, and submitted a plan and report with recommendations.

Neither of the plans was adopted in full; but repairs were made by the Superintendent, embracing in part the plan recommended. The reservoir is now supposed to be in good condition; though from the nature of its original construction it will always be liable to leak, and will require constant watching and care.

Considerable alarm has been created by the recent erection of a large slaughtering-establishment in Belmont near the shore of the pond, in what is known as Heywood's gravel-pit, through which the conduit passes, connecting Fresh and Little Ponds. The close proximity of the buildings to this conduit, and the porous nature of the soil, render it a particularly dangerous locality for a business of that nature. Plans were prepared, levels taken, and gaugings of the flow of water in the conduit (which is not a tight one) were made, for use at the hearing before the selectmen of Belmont, who granted the petition for the erection of the slaughter-house against a most determined opposition on the part of our city. Other plans, measurements, levels, and gaugings have been prepared for use in a hearing soon to occur before the State Board of Health, to which a formal complaint has been made. A committee has been recently appointed to consider the whole matter of the water supply, and to report thereon. As the matter is now before the committee for its consideration, no recommendations are offered on this subject.

Cemetery.

In addition to the usual work of staking out lots, giving lines and grades for the improvement of lots, paths, and avenues, several designs were furnished for a memorial group of cannon, which had been on the grounds at the soldiers' lot for several years. One of the designs was accepted, and contract made with Messrs. A. C. Sanborn & Co. for its construction.

The design was a granite base eight feet six inches square, on which was a plinth six feet six inches square, and fifteen inches in thickness, composed of a single stone which weighed some four and a half tons; on this the four cannon were placed, the cascabels resting near the corners of the plinth, the tops brought together and securely bolted; a ball was placed in the muzzle of each gun, on these a fifteen-inch shell, and on this a nine-inch shell. Through the shells an iron staff extends up some five feet higher, and is surmounted by a gilded eagle which turns, and indicates the direction of the wind. The total height from the ground to top is twenty-one feet. The granite was from Rockport. The work was completed before Decoration Day, and was presented with appropriate services on that occasion to the Grand Army.

Work of the Office.

The large map of the city has been mounted, and hung with balance-weights, so that it can be raised and lowered, thus bringing all parts within convenient seeing distance; a complete tracing on vellum cloth has been made, and is kept in the vault. The work on the sectional maps described in last report has been continued, and there are now twenty-six of them in progress more or less advanced. The whole number to be made is about forty, intended for the assessors' use; so far as they have been completed, they have been made use of by them.

The survey of the public property of the city has been continued. Much time has been required in examining the records to find the correct lines; and several important encroachments upon the city property have been determined, and if not soon removed the occupants will acquire rights by possession. There are some sixty pieces of this property, occupied as squares, schoolhouse lots, engine-house lots, police-stations, stables, department yards, and vacant lots, not including surrendered estates. Plans have also been prepared in book form (to which the city solicitor has added the condition of the titles) of all the property in the lowland filling districts surrendered to the city, making between sixty and seventy plans, and embracing about 150 lots. In addition there has been the work of making surveys for, and preparing plans and specifications for, bridges, sewers, the soldiers' monument, water-works stable, sea-

wall, the alterations of the Washington Schoolhouse, and superintendence of all new structures, besides numerous calls from the various departments of the city. Five persons have been regularly employed. The expenses of the department have been :—

Appropriation	\$6,500 00
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There has been expended, including salary of city engineer, pay of assistants, horse-hire, car-fares, draughting materials, hardware, stone monuments and setting, and other supplies, the sum of . . .	6,249 77
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Leaving an unexpended balance of	\$250 23
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Mention is here made of the fidelity with which the assistants connected with the department have discharged the duties intrusted to them.

Respectfully submitted,

WM. S. BARBOUR, *City Engineer.*

REPORT
OF THE
COMMISSIONER ON WEST-BOSTON, CANAL,
AND PRISON-POINT BRIDGES.

DECEMBER, 1878.

THE Commissioner for West-Boston, Canal, and Prison-Point Bridges, submits for himself and associate his Eighth Annual Report of matters pertaining to the West-Boston and Canal Bridges, and his Third Annual Report on Prison-Point Bridge.

West-Boston Bridge.

The sidewalk on the southerly side of the approach to this bridge on the Cambridge side has for several years given the commissioners considerable uneasiness from its being at times in a dangerous condition for travel, the result of the washing away and the settling of the filling under the brick pavement. Cavities of considerable extent have frequently been discovered, the only indication of which was a slight depression of the pavement over them. It had been thought that there were but a few places where this washing out took place, and that after these had been repaired no further trouble would be experienced. A careful examination by our engineer showed, however, that the difficulty could not be permanently remedied except by re-ballasting the sea-wall for the whole length of the sidewalk, the original ballast having settled so much as to afford no protection to the filling from the wash of the waves.

It was deemed advisable by the commissioners to do this work at once; and a contract was made with John Turner & Co., of Boston, to remove all the earth filling between the edgestone

and the sea-wall, and replace it by oyster-shells, the job to include all paving, setting of edgestones, &c. The work was very thoroughly done, and was completed June 20. All the wood pavement remaining between the horse-railroad tracks was replaced by granite blocks by Messrs. Turner & Co., at the same time the work on the sidewalk was being done. The cost of all the work done by these contractors was \$1,597.60.

Only ordinary repairs have been made on other portions of the bridge, and, except that the fences and woodwork need painting, the bridge is now in good order.

Canal or Craigie's Bridge.

This bridge has required but few repairs during the year, and these were due to the ordinary wear. The new portions of the substructure are in good condition: the old portions show little or no change for the worse. The superstructure and buildings are in good order with the exception of the paint. It was the intention of the commissioners to have this and the West-Boston Bridge repainted this year; but the unusual expense which they were obliged to incur on the West-Boston Bridge induced them to defer until next season this much-needed work.

As for several past years, Superintendent Smith has kept an account of the amount and kind of freight passing through the bridge during the year. His statement, which will prove of interest to many, will be found appended.

Prison-Point Bridge.

The travel over this bridge consists largely of heavily loaded teams; and, as the portion of the street at the Cambridge end is unpaved, the gravel from it is tracked on to the planked surface of the draw, and then ground in by the teams, causing an unusual wear, and making it impossible to keep the bridge clean. There would be a saving in the cost of maintenance of the bridge, and a great improvement in its cleanliness, to say nothing of the advantage it would be to heavy travel, if the street should be paved.

The draw, which is the principal portion of the bridge, has proved all that was anticipated for it by the Commissioners.

It is a remarkably strong and stiff structure.

Only the ordinary repairs have been made on the bridge and its appurtenances during the year, and they are now in good order. The building of a new house for the superintendent has been deferred until another season.

EZRA PARMENTER,

Commissioner for City of Cambridge.

Number of Times the Draw in West-Boston Bridge has been opened during the Year.

December, 1877	.	.	.	.	.	.	.	68
January, 1878	.	.	.	.	.	.	.	18
February, "	.	.	.	.	.	.	.	10
March, "	.	.	.	.	.	.	.	30
April, "	.	.	.	.	.	.	.	90
May, "	.	.	.	.	.	.	.	189
June, "	.	.	.	.	.	.	.	167
July, "	.	.	.	.	.	.	.	255
August, "	.	.	.	.	.	.	.	200
September, "	.	.	.	.	.	.	.	154
October, "	.	.	.	.	.	.	.	131
November, "	.	.	.	.	.	.	.	160
Total for the year	.	.	.	.	.	.	.	1,472

CHARLES W. BLANEY, *Superintendent.*

JOHN McNULTY, *Engineer.*

Number of Times the Draw in Canal Bridge has been opened during the Year.

December, 1877	.	.	.	.	.	.	.	138
January, 1878	.	.	.	.	.	.	.	54
February, "	.	.	.	.	.	.	.	42
March, "	.	.	.	.	.	.	.	67
April, "	.	.	.	.	.	.	.	183
May, "	.	.	.	.	.	.	.	402
June, "	.	.	.	.	.	.	.	350
July, "	.	.	.	.	.	.	.	428
August, "	.	.	.	.	.	.	.	430
September, "	.	.	.	.	.	.	.	332
October, "	.	.	.	.	.	.	.	318
November, "	.	.	.	.	.	.	.	264
Total	.	.	.	.	.	.	.	3,008

A. W. SMITH, *Superintendent.*

Number of Times the Draw in Prison-Point Bridge has been opened during the Year.

December, 1877	.	.	.	.	.	.	.	20
January, 1878	.	.	.	.	.	.	.	4
February, "	.	.	.	.	.	.	.	1
March, "	.	.	.	.	.	.	.	7
April, "	.	.	.	.	.	.	.	19
May, "	.	.	.	.	.	.	.	72
June, "	.	.	.	.	.	.	.	52
July, "	.	.	.	.	.	.	.	38
August, "	.	.	.	.	.	.	.	33
September, "	.	.	.	.	.	.	.	28
October, "	.	.	.	.	.	.	.	31
November, "	.	.	.	.	.	.	.	30
Total for the year	.	.	.	.	.	.	.	335

NATHANIEL E. STORY, *Superintendent.**Statement of the Amount and Kind of Freight which passed through Canal Bridge during the Year from Dec. 1, 1877, to Dec. 1, 1878.*

Coal	.	.	.	.	.	.	126,517 tons.
Stone	.	.	.	.	.	.	18,977 "
Gravel	.	.	.	.	.	.	13,513 "
Hay	.	.	.	.	.	.	1,049 "
Iron	.	.	.	.	.	.	759 "
Potash	.	.	.	.	.	.	443 "
Sulphur	.	.	.	.	.	.	200 "
Tiles	.	.	.	.	.	.	100 "
Powder	.	.	.	.	.	.	25 "
Lumber	.	.	.	.	.	.	13,780,000 feet B.M.
Brick	.	.	.	.	.	.	3,049,000
Posts	.	.	.	.	.	.	5,769 pieces.
Piles	.	.	.	.	.	.	3,283 "
Wood	.	.	.	.	.	.	7,260 cords.
Rockweed	.	.	.	.	.	.	25 "
Lime	.	.	.	.	.	.	26,839 bbls.

The expenses of the city of Cambridge for the care and maintenance of West-Boston, Canal, and Prison-Point Bridges for the year were as follows:—

Amount of appropriation	.	.	.	.	.	\$7,000 00
Superintendents' salaries	.	.	.	.	.	\$2,079 85
Commissioners' salaries	.	.	.	.	.	500 00
<i>Amounts carried forward</i>	.	.	.	.	.	\$2,579 85
						\$7,000 00

<i>Amounts brought forward</i>	\$2,579 85	\$7,000 00
Fuel, gas, oil, and lighting		
bridges	1,223 39	
Paving	985 94	
General repairs, sweeping, and		
cleaning bridges	352 86	
Water rates and watering of		
bridges	309 00	
Lumber	176 26	
Damages (claims) and adver-		
tising	109 3	
Iron-work and tools	106 22	
Total expenses	\$5,842 89	

CR.

By wharfage	\$20 00	
Sheathing on bridge	38 40	
		58 40
		5,784 49
Balance unexpended		\$1,215 51

· R E P O R T
OF THE
TRUSTEES OF THE DANA LIBRARY.

THE Trustees of the Dana Library, submitting this their Twenty-first Annual Report, confidently assure the City Council that the Library is making constant progress in the public regard, each year showing a decided advance beyond its predecessor in the increase of its issues and accession of readers; thus justifying, in the fullest manner, the liberal provision for its support, which has been granted by the government for several years past.

The Library was established in 1858. From that time till early in the year 1874, it was not really available to the people, because it was not really free. Its usefulness was obstructed by an annual charge of one dollar to each subscriber. This was a small amount to pay for the privileges of such an institution; but the exaction of it was the chief reason why those privileges were not sought after. So little was the Library known and valued, that for many years the number of subscribers was extremely limited; indeed, so few were they, that at the close of 1873 the list reached to 310 only. The Library had then been in existence for fifteen years, and was an annual charge to the city's treasury of about three thousand dollars. In that year the total issue of books was 12,566; the largest weekly issue being 349, and the largest for any one day, 165. Compare these results with those of 1878. During this year we have given out 90,447 volumes. The highest number in any week, 2,343; the largest daily issue being 733.

These facts prove conclusively the impolicy of requiring a subscription fee; and that such a requirement defeats, in some measure, the object for which public libraries were authorized

by law in Massachusetts, and the people legally taxed for their support, — namely, that the opportunity to read good books should be placed gratuitously within the reach of all, who, by reason of social associations, or defects of education, or lack of means, or any other cause, might be unable or unwilling to avail themselves of this method of enlightening their minds and ennobling their tastes, and thus contributing to the improvement of the community of which they form a part.

Early in the year 1874, — now about five years since, — the Trustees made the Library free to all residents of the city, of the age of fourteen and upwards. The effect of this action of the Board on the prosperity of the Library can be shown very clearly by the following statement.

In 1873 the number of books issued was	.	.	.	12,566
1874 " " " " "	.	.	.	47,327
1875 " " " " "	.	.	.	62,289
1876 " " " " "	.	.	.	82,312
1877 ¹ " " " " "	.	.	.	81,241
1878 " " " " "	.	.	.	90,447

These figures furnish the strongest inducement for a liberal provision in the future. No words can add to their force, nor silence detract from it. If there be any in the public councils who would hesitate to accord a generous support to the Library, we beg leave to direct their candid attention to the results here shown, feeling assured they will be found sufficient, without argument or amplification, to remove their scruples.

A large proportion of the readers at this Library — perhaps two-thirds — are between the ages of fourteen and twenty-five. Many of these are pupils in the public schools; and many have withdrawn from the schools, just as they had begun their education, compelled by necessity to commence the struggle for a maintenance. To this latter class, especially, a public library is a blessing beyond calculation. For there are hundreds who would seek to improve themselves, if they only knew how; and a judicious selection of books, accessible at all times, furnishes at once the means, and points the way.

¹ The Library was closed this year in May, for alteration of rooms. Had it been open, the usual issue for that month would have carried the year's total to 85,000.

So great a portion of our readers being youth, of both sexes, the duty of selecting and purchasing books becomes one of great care and delicacy ; because there is diversity of opinion — and sometimes feeling is displayed on the subject — as to the policy of providing fiction, and other light reading, for indiscriminate use, as it must be in a public library, if allowed at all. In making selections, it should not be forgotten, that all ages and all tastes must be gratified. The Trustees cannot compel any one to use the Library. They must attract, by furnishing such books as the people like to read. And, if fiction is liked, the Trustees believe themselves justified in furnishing it to a proper extent, provided such works are selected as are not of an immoral tendency. No harm can come of it, and pleasure is conferred, and profit and instruction gradually gained. Many will be drawn to the library, and thus allured from idleness and vice, upon whom, sooner or later, something higher and better will get a hold, and their minds be influenced in the right direction.

More books have been added the past year than in any previous one. These have been apportioned duly among the various kinds of literature. History, poetry, religion, art, science, travels, biography, fiction, and juveniles are all represented, and all find readers. The works of almost all authors of reputation are found upon our shelves. The rooms are visited by residents from all parts of the city, and most of them appear to be satisfied with the arrangements for their accommodation.

The position of the Library as an indispensable institution of the city is now established and defined. By its continued use the public taste will improve, and books in the higher departments of literature will be more and more demanded of us. The best assurance of this we find in the increasing popularity of our periodical publications, which contain original and selected articles by the best writers of this and other countries.

The statistics which follow will show the working of the Library, in all necessary particulars, for the year covered by this report.

Number of Books issued in 1878.

First quarter	25,050
Second quarter	24,450
Third quarter	18,871
Fourth quarter	22,076
Total	90,447
Average per day	295
Largest daily issue (Feb. 23)	733
Largest weekly issue (first week in March)	2,343
Largest monthly issue (March)	9,441
Books replaced, including the lost, 6; worn out, 76	82

Accessions for Five Years.

Number of volumes in the Library at the close of	
1873	6,672
Added in 1874	748
in 1875	608
in 1876	1,016
in 1877	794
in 1878	1,085
Number now belonging to the Library	10,923

Of the accessions for the current year, 919 were purchased or received in exchange for Paige's History of Cambridge, and 166 were gifts from the following sources:—

Heirs of the late Rev. R. M. Hodges	50
Swedenborg Publication Society, New York	20
Hon. William Claflin, M.C. (public documents)	19
Francis W. Story	14
Alanson Bigelow ¹	41
William A. Parker ¹	4
State of Massachusetts	7
The United States Government	6

¹ Remainders of donations made several years since, now catalogued for the first time.

Cobden Club, England; Rev. Lucius R. Paige; Haverhill, Mass., Public Library; Nicholson Tile Co., Providence, R.I.; City of Cambridge,—1 each . . . 5

In January last, we commenced to number anew the names of subscribers. The total then on the books was 7,623. We have received of new names during the year, 1,211; transferred from old cards to new ones, 2,419. The number of persons now using the Library is probably not far from four thousand.

Receipts.

From sale of catalogues and waste paper . . .	\$29 50
From fines	112 95
	\$142 45

All of which has been placed in the city treasury.

Paige's History of Cambridge.

Of this work 153 copies were in our hands at the time of the last report. During the year we have exchanged 10 copies for eleven "works of similar character," in accordance with the vote of the City Council of 1877; leaving 143 at the disposal of the Board. We have been extremely careful in the distribution of this volume; for all can readily see that as time goes on it will become scarce, and therefore more appreciated. Then opportunities will offer for exchanges of greater value and advantage to the Library, than can be expected at present, while the book is comparatively new and fresh. It is of rare occurrence, that a local history like this, when out of print, is republished; and this one it is not likely will prove an exception, on account of its size, and the great expense that would be incurred by a new edition.

The Fay Legacy.

The income of this legacy—sixty dollars—has been expended for books, as directed by the donor, the late ISAAC FAY, in his will. The principal—one thousand dollars—stands, as stated in our last report, invested in the note of the city.

The Reading-Room.

The number of visitors has largely increased during the year past; and the room is becoming more and more appreciated by the public. We regard it as a valuable appendage to the Library. There are many readers of newspapers and periodicals, who do not use the latter at all, but constantly resort to the reading-room; and we note with pleasure that this class of readers is constantly enlarging.

Number of visitors in 1876	.	.	.	9,865
1877	.	.	.	11,471
1878	.	.	.	15,544
Increase this year over the last	.	.	.	4,073
Increase for two years past	.	.	.	5,679

Expenses.

Salaries, — Librarian, Assistants, Superintendent of Reading-room, Janitor, Helpers, permanent and temporary	.	.	.	.	.	.	.	\$1,969 05
Books, periodicals and newspapers	.	.	.	.	.	.	.	1,819 40
Rent	.	.	.	.	.	.	.	1,000 00
Printing	.	.	.	.	.	.	.	446 31
Bookbinding (including repairs of books)	.	.	.	.	.	.	.	264 69
Gas	.	.	.	.	.	.	.	347 13
Stationery	.	.	.	.	.	.	.	78 04
Sundries (slight repairs of rooms and petty expenses)	.	.	.	.	.	.	.	75 30
Total expenses	.	.	.	.	.	.	.	\$5,999 92
Amount of appropriation	.	.	.	.	.	.	.	6,000 00
Unexpended balance	.	.	.	.	.	.	.	08

We have thus endeavored to furnish, somewhat in detail, a statement of the past and present condition of the Library; and from it the City Council cannot fail to see its prospects and its needs. We believe that it is exerting a powerful influence for good in this community, and that it is destined to still greater

efficiency, if properly sustained by the government. To keep it in good condition, and fully abreast of the demands of our people upon it, will require an appropriation of \$6,000 for the coming year. We request, therefore, that this amount may be placed at the disposal of the Trustees.

Respectfully submitted,

SAM'L L. MONTAGUE,	} Trustees.
JOHN S. MARCH,	
H. B. GOODWIN,	
ISAAC A. NAY,	
JAMES A. FOX,	

DEC. 31, 1878.

REPORT

OF THE

TRUSTEES OF THE DOWSE INSTITUTE.

TO THE HONORABLE CITY COUNCIL OF CAMBRIDGE:—

The Board of Trustees of the Dowse Institute respectfully submit an attested copy of the Annual Report of its Treasurer, which contains an exact account of the receipts and expenditures of the Board for the year 1877-78.

The course last season was given in Union Hall, and consisted of lectures by E. H. Chapin, E. S. Morse, Henry Ward Beecher, and H. G. Spaulding; of readings by R. R. Raymond and Henry Nichols; of magic by Le Commandeur Cazeneuve; of concerts by Madame Eugenie Pappenheim, Mrs. H. M. Smith's Concert Party, W. H. Sherwood, Sig. P. Brignoli, Miss Sarah C. Fisher, Schubert Quartette, and Barnabee Concert Company; and of an opera by the Boston English Opera Company.

Respectfully submitted,

SAM'L L. MONTAGUE,	} Board of Trustees.
GEO. S. SAUNDERS,	
W. W. WELLINGTON,	
W. A. BULLARD,	
FRANK A. ALLEN.	

CAMBRIDGE, Dec. 31, 1878.

REPORT

OF THE

TRUSTEES OF THE BRIDGE CHARITABLE FUND.

THE Trustees of the Bridge Charitable Fund herewith present their Second Annual Report.

This fund was created under a deed of trust, which, with the circumstances attending the gift, and the doings of the City Council thereon, is fully reported in the City Documents for 1878, p. 192.

The total value of the fund, as shown by its bank-book, with interest made up to January, 1879, is \$1,897.89.

The fund, with its accruing interest, will in a little more than a year amount to the sum of two thousand dollars (\$2,000), after which, as provided in the deed of trust, and by the ordinance, "two-thirds of the interest shall be paid over to the overseers of the poor, to be by them expended for the deserving poor of the city in such manner as they shall deem best, and the balance of the interest shall be added to the principal forever."

That this fund, founded with such benevolent motives, may be largely increased by the gifts of "other liberal and philanthropic persons," is the fervent wish of the Trustees for the year 1878.

SAM'L L. MONTAGUE,	} Trustees.
GEO. S. SAUNDERS,	
JOSHUA G. GOOCH,	

REPORT

OF THE

TRUSTEES OF THE SANDERS TEMPERANCE FUND.

TO THE HONORABLE CITY COUNCIL OF THE CITY OF CAMBRIDGE:—

The Board of Trustees of the Sanders Temperance Fund herewith submits its Fourteenth Annual Report, it being for the financial year of the city ending Nov. 30, 1878.

This trust fund, amounting to \$10,000, was a legacy bequeathed to the city by Charles Sanders, Esq., and has heretofore been invested in one note payable to the order of Joseph Whitney, City Treasurer. On account of the change in the office of City Treasurer, and under authority of the City Council, a new note for the amount of the trust has been executed by W. W. Dallinger, City Treasurer, and made payable to the order of this Board.

It is provided in the will of Mr. Sanders, that the interest of the fund “should be paid quarterly as salary to some worthy man who has discretion and zeal for the cause, to be constantly employed as a missionary in the cause of temperance, in reforming old drunkards, and preventing young drunkards, and abolishing as far as possible the use of all intoxicating articles.”

Upon the acceptance of the bequest by the city, an ordinance was adopted to establish the fund under the conditions named in the will. The position of missionary thereunder has for several years been held by Mr. Alonzo Stewart, who has been long and favorably known as an active promoter of the work of temperance reform in this city. Mr. Stewart was re-elected by this Board in the month of April last; and to him as missionary

has been paid quarterly the interest of the fund, the same amounting to \$600 per year.

The annual report of the missionary is herewith given.

SAM'L L. MONTAGUE,	}	<i>Trustees of the Sanders Temperance Fund.</i>
GEO. S. SAUNDERS,		
SILAS RHOADES,		
WOODWARD EMERY,		

REPORT

OF THE

SANDERS TEMPERANCE FUND MISSIONARY.

TO THE TRUSTEES OF THE SANDERS TEMPERANCE FUND:—

Gentlemen,—Another year with all its hopes, its fears, and its responsibilities and mis-spent opportunities, is now ended; and with its close comes to each of us, from Him whose right it is, the command to render an account for the months just past.

In obedience to this call, and the duty I owe you, I give the following report of my labors as temperance missionary of Cambridge. If it appears as unsatisfactory to you as to me, I cannot ask your approval; but if you can feel to say, as the Friend of sinners said of one in his time, “He has done what he could,” that will be sufficient commendation. Apparent results are not always correct evidences of faithful or unfaithful labors.

In fulfilling the requirements of my office I have visited the Police Court at most of its sessions, and have done all I could to persuade, encourage, and if necessary help, the unfortunate victims of intemperance. With pleasure I avail myself of this opportunity of publicly returning thanks to the Chief of Police and his subordinate officers for their kind and efficient aid in the prosecution of my work. One hundred and seventy-one pledges of total abstinence from all intoxicating drinks have been administered to persons brought before the court for drunkenness. Most of these, I have reason to know, have been faithfully kept.

Eighty-six visits have been made to the jail, house of correction, and almshouse; in which places 37,890 pages of temperance and religious reading have been distributed.

The results of these labors the future must determine. The duty is with us : the results are with Him who holds in his hand the destiny of nations as well as individuals.

And now permit me, gentlemen, not in any spirit of dictation, but as your missionary, to call your attention to what, after careful thought, seems to me one of the greatest evils of the present license-law. I mean the granting of fourth-class licenses to grocers and provision-dealers. To these stores our wives and children resort daily for the necessities of life, and here they are brought in closer contact with the evil than in any other public place. Here, too, children are sent with pitchers and covered pails to take intoxicating drink to their homes ; and in the presence, and encouraged by the example, of their mothers, the habit of intemperance is formed in childhood.

The household duties are neglected, neighbors are invited in, time passes unheeded ; and when the husband and father returns from his toil, for his noon or evening meal, nothing is ready. Then angry words ensue, followed perhaps by blows ; the police are called in, arrests are made, conviction follows ; and often the father, the comparatively innocent cause, is sent to the prison, the family is broken up to become a public charge to the city.

Will not the granting of this class of licenses account for the alarming and painful increase of intemperance among women ?

Respectfully submitted,

ALONZO STEWART, *Missionary.*

REPORT

OF

THE MILK INSPECTOR.

TO HIS HONOR THE MAYOR, AND ALDERMEN OF THE CITY OF CAMBRIDGE:

Gentlemen,—I herewith submit my report for the year ending Nov. 30, 1878.

The whole number of registered milk-dealers in the city at this date is about sixty-five.

Early in the year my attention was called to the milk coming into the city by railroad, and delivered to the milkmen at East Cambridge. On speaking to the contractors in regard to the matter, they gave me every facility to examine into it. I found that with very few exceptions the milk was up to average quality.

These exceptional cases were analyzed; but, as the parties who furnished them were New Hampshire farmers, no legal proceedings could be instituted, as there is no law upon the subject in New Hampshire.

In the course of this investigation I made a number of complete analyses with the following results.

No.	Specific Gravity.	Sugar and Caseine.	Ash.	Solids not Fat.	Fat.	Total Solids.	Water.	Cream, vol. %.
1	1.022	5.95	.45	6.40	1.96	8.36	91.64	5
2	1.030	7.60	.60	8.20	3.51	11.71	88.29	9
3	1.026	6.69	.44	7.13	3.26	10.39	89.61	12
4	1.032	8.98	.63	9.61	3.38	12.99	87.01	5
5	1.029	7.89	.60	8.49	3.45	11.94	88.06	8
6	1.026	6.94	.50	7.44	1.98	9.42	90.58	6
7	1.027	7.61	.55	8.16	2.80	10.96	89.04	5
8	1.033	8.64	.70	9.34	1.62	10.96	89.04	3
9	1.026	7.23	.55	7.78	2.61	10.39	89.61	8
10	1.029	8.87	.59	9.45	3.83	13.28	86.72	18
11	1.029	8.28	.59	8.87	2.70	11.57	88.43	14
12	....	7.63	.45	8.08	2.96	11.04	88.96	..
13	1.033	8.81	.48	9.29	3.17	12.46	87.54	7
14	1.031	8.97	.74	9.71	3.93	13.64	86.36	10
15	1.026	7.05	.55	7.60	2.25	9.85	90.15	4
16	1.026	7.19	.60	7.79	2.39	10.18	89.82	5
17	1.030	8.70	.60	9.30	3.20	12.50	87.50	9

Of these milks there is little doubt but that Nos. 1, 2, 3, 6, 7, 8, and 9 had been watered. Notice was at once sent to the farmers who furnished the first six of these, that they must try and do better. This notice was followed by a marked improvement in the milk. In the case of No. 9, which was said to be furnished by Dexter B. Patrick, the milk-inspector of Boston was notified, and a few days after succeeded in obtaining two samples of milk direct from his wagon, which when analyzed proved to be watered; and he was accordingly convicted in the Boston Municipal Court of the offence. He has, I believe, quitted the business. The samples upon which he was convicted are numbered 15 and 16 in the list.

No. 12 is a good example of how people are sometimes supplied with pure milk from their own cow. This milk was from a cow kept for private use: the housekeeper had the privilege of selling the excess of milk. She evidently took care that there should be an excess.

No. 17 is the average analysis of milk given for purposes of comparison.

With the exception of the above cases there has been but little complaint in regard to the quality of milk during the past year. It has been abundant, of good quality, and low in price, the price varying from four to eight cents per quart.

City Property in Inspector's Office.

One lactometer. One silver badge.

S. P. SHARPLES,
Inspector of Milk.

DECEMBER, 1878.

REPORT
OF THE
SEALER OF WEIGHTS AND MEASURES.

TO THE BOARD OF MAYOR AND ALDERMEN OF THE CITY OF CAMBRIDGE:

Gentlemen,—In accordance with the law I have visited such places as I have deemed necessary, and sealed the weights and measures found therein, and collected the fees for the same, which have been turned over to the City Treasurer.

There have been no changes in the law since the date of my last report. A considerable number of the smaller places of business which were visited last year have been closed for want of custom. I have not thought it necessary, when I found tin and wooden measures in good condition, to reseal them this year. These two items have served to reduce considerably the amount received as fees.

State Property in Possession of the Sealer of Weights and Measures.

One balance.

One set avoirdupois weights.

One set liquid measures.

One set dry measures.

One brass yard-measure.

City Property in Possession of Sealer of Weights and Measures.

One ton of iron fifty-pound weights.

One trip scale and box.

One set brass weights in box.

Four iron weights: one 25 pounds; two 10 pounds; one 5 pounds.

Lot of tools and stamps for adjusting and sealing weights and measures.

S. P. SHARPLES, *Sealer of Weights and Measures.*

DEC. 11, 1878.

REPORT

OF

THE CAMBRIDGE WATER-BOARD.

TO THE HONORABLE CITY COUNCIL OF THE CITY OF CAMBRIDGE:—

In obedience to the requirement of the city ordinance, the Cambridge Water-Board herewith presents its Fourteenth Annual Report.

Total Cost of the Works.

Cost of the Water-works Nov. 30, 1877, as per last year's report	\$1,672,592 29
Expended for construction during the year ending Nov. 30, 1878	12,752 55
Total expenditure	<u>\$1,685,344 84</u>
Add difference between discount and expenses allowed, and premium received in negotiating the water-loan from the first, as per statement of W. E. Gates, expert	6,827 10
Making total cost of works Nov. 30, 1878	<u>\$1,692,171 94</u>

Net Cost of Water-Works.

Amount of total cost as above stated	\$1,692,171 94
Less amount of water-loan paid from the water-debt sinking-fund to Nov. 30, 1878	186,400 00
Amount carried forward	<u>\$1,505,771 94</u>

<i>Amount brought forward</i>	\$1,505,771 94
This is the amount of unpaid water-debt, Nov. 30, 1878 ¹	
Deduct from this the value of the water-debt sinking-fund as shown by the Trustees' account to Nov. 30, 1878	296,289 71
Showing net cost of the works Nov. 30, 1878 .	\$1,209,482 23

Statement showing in brief the transactions on account of the Water-works for the year ending Nov. 30, 1878:—

Received.

Appropriation for construction account . . .	\$16,000 00
From water rates \$158,438 15	
Less water rates refunded 994 24	
	\$157,443 91
Shutting off and letting on water	1,316 59
Rent of house	140 00
From supply account, and the sale of old material,	3,784 89
Balance showing loss in 1878	738 46
	\$179,423 85

Expended.

For construction account	\$12,752 55
Maintenance account	25,229 06
Supply account	1,754 79
Interest on water-debt	90,960 00
Paid into the sinking-fund	45,480 00
Unexpended appropriation	3,247 45
	\$179,423 85

Comparative Receipts.

Water rates for the year ending Nov. 30, 1878,	\$157,443 91
“ “ “ “ “ “ “ “ 1877,	154,843 59
Showing gain in the year 1878	\$2,600 32

There are due from the city water rates which were not approved in time to include in this year's account, to the amount of \$7,164.65.

¹ There is a discrepancy between the water-bonds outstanding and the unpaid cost of the Water-works, amounting to \$22,728.06, to which we call your attention, and which we will explain in another part of our report.

Water-Bond Account.

Whole amount of water-bonds issued . . .	\$1,714,900 00
Less amount paid from sinking-fund . . .	186,200 00
Bonds outstanding per Auditor's books . . .	\$1,528,700 00
Money in the City Treasurer's hands taken from the sinking-fund to pay matured bonds not yet presented for payment	200 00
Leaving amount of unpaid water-bonds . . .	\$1,528,500 00
Total expenditures on Water-works as per pre- vious account herein presented	\$1,685,344 84
Add the difference between the discount, brokerage, and tax paid, and the premium received in selling the bonds, as being a proper charge against the Water- works, say amount of discount allowed	\$22,699 63
Amount of brokerage and tax paid	1,381 57
	\$24,081 20
Less premiums received	17,254 10
	6,827 10
Making the total cost of the works	\$1,692,171 94
Less amount paid from sinking-fund	186,400 00
Showing the unpaid cost of Water-works . . .	\$1,505,771 94
And we have as a result as follows:—	
Amount of unpaid water-bonds	\$1,528,500 00
Amount of unpaid cost of Water-works . . .	1,505,771 94
Balance	\$22,728 06
Showing that the unpaid water-bonds exceed the unpaid cost of the Water-works in the sum as shown of	22,728 06

It is plain, that this amount does not in any way belong in the water-debt, and, further, that we have been charged the interest on this sum from time to time while it has been accumulating.

This has been brought about by the unexpended balances due from the sale of water-bonds, having lapsed into the city treasury at the end of the year, while the extension of the Water-works account got no credit in the next year for this unexpended amount.

We would recommend that you cause this account to be made up correctly, and the proper steps taken to make the outstanding water-bonds, and the unpaid cost of the Water-works, agree; and that the accounts be so kept in the future, that a similar discrepancy will not appear.

In former years there have been charged to the Water-works account, several large amounts, the connection between which and the extension of the Water-works it was difficult for all to see. But, whatever differences of opinion there may have been in regard to these special items referred to, it seems to us there can be none in regard to the impropriety of charging to the Water-works any portion of the current expenses of the city; and this seems to be the case in regard to these balances, which were the proceeds of the sale of water-bonds not used for the account of the Water-works, but merged in the general funds of the city, as hereinbefore explained.

RAINFALL AS GIVEN BY THE CAMBRIDGE OBSERVATORY.

	RAINFALL.			BELOW HIGH-WATER MARK.		
	1876.	1877.	1878.	1876.	1877.	1878.
				Ft. In.	Ft. In.	Ft. In.
1877. December	1.04	5.09	0.84	6 13 ¹ / ₄	4 7	2 2 ¹ / ₂
1878. January	1.82	3.87	5.84	5 6	4 6	2
February	4.74	0.89	6.59	5 5 ¹ / ₂	4 2 ¹ / ₂	1 8
March	6.53	7.46	4.17	5 13 ³ / ₈	2	9
April	4.65	3.66	5.15	4 1 ¹ / ₄	0 8 ¹ / ₂	8
May	3.07	3.58	0.87	3 8 ³ / ₈	0 11 ⁷ / ₈	9
June	1.92	2.26	2.68	4 0 ³ / ₄	1 9	1 5
July	6.08	2.66	4.82	4 11 ¹ / ₄	2 8 ¹ / ₂	2 3 ¹ / ₂
August	1.38	4.58	6.21	5 4 ³ / ₈	3 6 ¹ / ₄	2 3 ³ / ₈
September	3.77	0.51	2.24	5 8 ⁵ / ₈	4 3 ³ / ₄	2 7 ¹ / ₂
October	1.82	6.77	5.06	6 5 ¹ / ₂	4 6 ¹ / ₂	3 1
November	6.78	7.60	6.52	5 13 ³ / ₈	3 11	3
Total	43.60	48.93	50.99	Av. 5 1 ⁵ / ₈	3 1 ⁵ / ₈	1 10 ⁵ / ₈

It will be seen by this table, that we had 1.06 inches more rain in 1878 than in 1877, and that we had 11 inches more water in the pond at the close of the year. The greatest variation of water in the pond during the year was 2 feet 4 inches, from the highest to the lowest point.

By reference to the superintendent's report, we find that we pumped in 1877, 960,582,300 gallons, a daily average of 2,631,732 gallons; while in 1878 we pumped 823,874,400 gallons, a daily average of 2,257,190 gallons; showing a gain this year over last year of 136,707,900 gallons less water pumped, a daily average of 374,542 gallons. This difference can be accounted for by various reasons, prominent among them being the excellent condition of our works in regard to leakage and waste. A corresponding saving has been made in the coal consumed during the year, a saving of 222,200 pounds of coal being shown over last year.

Purity of Our Water.

The vegetable growth which troubled us so much last year, and of which we gave extended account in our last report, was very much less this year; showing that for some reason the unusual growth of last year was an abnormal development, and that we need not expect, except at long intervals, such growth as was then manifested.

The water from Fresh Pond has been analyzed many times during the past season, with similar results as have followed former examinations. We send you herewith a letter, and tabular statement, from Professor William R. Nichols, showing the results of seventeen different examinations made by him during the year.

Letter from Professor Nichols of the Mass. Institute of Technology, accompanying the Table of different Analyses in 1878.

BOSTON, Dec. 14, 1878.

GEORGE P. CARTER, ESQ.,

President Cambridge Water Board, Cambridge, Mass.

My dear Sir, — I enclose herewith a table containing the results of some of the examinations of Fresh-Pond water, which have been made in my laboratory during the present year.

These samples were taken two feet below the surface at one or the other of two points several hundred feet apart, at the mouth of the

bay from which the conduit issues. I have made other examinations of water taken at different depths at the same time; but, as they form part of an investigation which I am making with reference to some disputed points in the history of pond waters, I do not care to publish the results until I have accumulated more data than I have at present, lest they should give rise to some premature generalizations. If these enclosed results are of any service to you, I should be glad to have you make use of them.

Yours very respectfully,

WM. RIPLEY NICHOLS.

ANALYSES OF FRESH-POND WATER BY PROFESSOR WILLIAM RIPLEY
NICHOLS DURING THE SEASON OF 1878.

[Results expressed in parts in 100,000.]

No.	Date.	Locality.	UNFILTERED WATER.		Total solid Residue dried at 212° F.	Chlorine.	Temperature in De- grees Fahrenheit.
			Ammonia.	"Albuminoid Ammonia."			
1	May 4	S.W. buoy . .	.0021	.0176	12.4	1.41	62°
4	" 14	" " . .	.0027	.0149	13.1	1.23	58
7	June 4	" " . .	.0945	.0155	16.1	1.41	66
10	" 12	N.E. " . .	.0027	.0155	13.3	1.31	63
13	" 19	S.W. " . .	.0027	.0129	13.7	1.38	69
16	" 25	N.E. " . .	.0035	.0285	15.6	1.47	72
19	July 2	S.W. " . .	.0039	.0251	14.7	1.47	82
22	" 9	N.E. " . .	.0035	.0184	13.8	1.38	79
25	" 16	S.W. " . .	.0029	.0203	13.2	1.30	78
28	" 23	N.E. " . .	.0021	.0173	13.2	1.40	75
31	August 6 . . .	N.E. " . .	.0037	.0197	11.7	1.44	75
34	" 13	S.W. " . .	.0045	.0216	12.0	1.37	75
37	" 20	N.E. " . .	.0045	.0195	11.0	1.36	75
40	" 27	S.W. " . .	.0024	.0202	11.7	1.31	72
43	October 21 . . .	N.E. " . .	.0181	.0166	13.3	1.46	..
46	November 7 . . .	S.W. " . .	.0309	.0173	11.5	1.22	49
49	December 7 . . .	N.E. " . .	.0296	.0234	12.6	1.30	40

Several analyses of Fresh-Pond water have been made during the year by Professor Sharples; and with his table he sends the

results in connection with those of Professor Nichols at the same or about the same time, and also gives what he thinks is the best solution of the fact that our water during the late fall and winter months is not in as good condition as other parts of the year. We submit herewith his communication for your more full information, and for future reference.

DEC. 16, 1878.

TO THE CAMBRIDGE WATER-BOARD: —

The analyses of Professor Nichols and myself, made at various times, of the water of Fresh Pond, would seem to indicate, that, while the annual change in the water is but slight, it nevertheless does go through a regular series of changes.

These changes are shown by the ammonia, and more markedly by the free than by the albuminoid. We have now available about thirty determinations of the free and albuminoid ammonia in the water of the pond, besides a few exceptional ones by Professor Nichols made of the water taken from the bottom of the pond last December.

Those made by Professor Nichols may be found in his special report to this Board, and in the last Annual Report of the State Board of Health.

The majority of my analyses are also reported in the same report. I have tabulated all these analyses in Table I. This seems to show that, while the albuminoid ammonia is almost constant, varying only from about .0150 to .0230, with the exception of two or three isolated cases, the free ammonia, on the contrary, is subject to much greater variations. It remains about constant from May to October; then it suddenly rises from about .0050 to .0144, attaining its maximum at about the end of the month, when it reaches .0419: from that time until March and April it seems to gradually sink. Now, while the determinations are far too few to speak with certainty, as they should extend over years of time with constant observations of the temperature and rainfall, and also microscopic observations of the life in the pond, yet I think they are sufficiently numerous to show that there is a law governing the changes, which may be briefly stated thus: —

The amount of free ammonia in the water is small so long as plant-life is vigorous and healthy; but so soon as this is checked by the frost in the fall this suddenly rises, from the fact that the plants commence to decay as soon as they are killed; and the amount of ammonia is also, no doubt, increased by the leaves that blow or fall into the pond, and there decay. This ammonia gradually escapes until by about May, or sooner, according to the state of weather, and

according to the fact of the ice covering the pond or not, it has arrived at about its normal state. The round is again repeated the next year.

In order to establish this law in regard to the water, and also to ascertain the facts in regard to the remaining water-supply of the city, analyses should be made at least once every two weeks, extending over a space of not less than two years; and these analyses should not only cover the waters of Fresh Pond, but should also include determinations of Little Pond, Spy Pond, Wellington Brook, and the conduit.

With the facts that we now possess, it is very evident that no single isolated determination of any of these waters is very satisfactory as showing whether it is remaining constant in quality, or whether it is deteriorating.

Respectfully,

S. P. SHARPLES.

TABLE OF ANALYSES.

		AMMONIA.					AMMONIA.		
		Free.	Albu- minoid.	Total.			Free.	Albu- minoid.	Total.
Feb. 22, 1875	S.	.0170	.0155	.0325	Aug. 6, 1878	N.	.0037	.0197	.0234
March 13, 1876	S.	.0048	.0086	.0134	" 13, 1878	N.	.0045	.0216	.0261
May 4, 1878	N.	.0021	.0176	.0197	" 20, 1878	N.	.0045	.0195	.0240
" 14, 1878	N.	.0027	.0149	.0176	" 27, 1878	N.	.0024	.0202	.0226
June 2, 1875	S.	.0010	.0050	.0060	Sept. 4, 1877	N.	.0061	.0197	.0258
" 4, 1878	N.	.0045	.0155	.0200	" 4, 1877	N.	.0051	.0248	.0299
" 12, 1878	N.	.0027	.0155	.0182	Oct. 1, 1877	S.	.0050	.0148	.0198
" 16, 1875	S.	.0010	.0050	.0060	" 18, 1877	N.	.0144	.0234	.0378
" 19, 1878	N.	.0027	.0129	.0156	" 21, 1878	N.	.0181	.0166	.0347
" 25, 1878	N.	.0035	.0285	.0320	Nov. 14, 1877	N.	.0419	.0179	.0598
July 2, 1878	N.	.0039	.0251	.0290	" 7, 1878	N.	.0309	.0173	.0482
" 9, 1878	N.	.0035	.0184	.0219	" 14, 1878	S.	.0224	.0224	.0448
" 16, 1878	N.	.0029	.0203	.0232	Dec. 7, 1878	N.	.0296	.0234	.0530
" 23, 1878	N.	.0021	.0173	.0194					

General Remarks.

There has been but very little done this year in the extension of the Water-works; and what has been done is so fully set forth in the Superintendent's Report, which we present herewith, that we need say no more on this topic than to refer you to his report for full details of the work done.

The almost annual agitation of the question as to the purity of our water-supply, and what is necessary to preserve its purity, has again come up this year; this time forced upon public attention by the erection of a large slaughter-house by Niles Brothers, within a short distance of Fresh Pond, and very near our conduit connecting Fresh Pond with our other sources of water-supply.

As soon as it was ascertained that there was an intention to build this slaughtering establishment, all steps at our command were adopted to prevent it. A committee consisting of the Mayor, the City Solicitor, and the President of this Board, was appointed with full power, with instructions to do every thing that could be done to prevent the evil results that must inevitably follow the prosecution of this business as was contemplated.

It was found that the parties building, had not first procured the consent of the Selectmen of Belmont according to the law in regard to erecting slaughter-houses; and application was made to the Supreme Court for an injunction to forbid any further work on the building. At the same time the Board passed a vote, requesting the Selectmen of Belmont to grant us a hearing before giving their permission to have the slaughter-house erected, which we considered would be of great damage to the city of Cambridge, and, so far as we could see, of little or no benefit to the town of Belmont. A hearing was granted; and the City Solicitor, with Judge Hoar, who had been retained as counsel, and the President of this Board, with other members, appeared before the Board of Selectmen of Belmont, consisting of Messrs. Josiah S. Kendall, Henry Frost, jun., and Converse F. Livermore, and presented the case, showing by expert witnesses, the danger to our water-supply that would result from such a business carried on where it was intended; saying and doing all that could be said or done to induce them to withhold their consent to the erecting of the building. But it was all of no avail, and a permit was given to have the building completed and used as a slaughter-house. We cannot look upon this act on the part of Belmont, except as most unneighborly in an adjoining town, and granted by those who represented the town in utter disregard of the Golden Rule. We think the time will come, not far distant, when the better por-

tion of the citizens of Belmont will heartily regret and condemn this action of her representatives.

After a permit was granted by the Selectmen of Belmont, no legal ground for asking an injunction from the Supreme Court was left. Our next hope of relief was from the State Board of Health. It was found they could do nothing until the business was begun. The building was completed; and slaughtering of hogs commenced the latter part of November, at the rate of several hundred daily.

As soon as it could be done, a petition was presented by the Mayor to the State Board of Health, asking them to "order Niles Brothers to cease and desist from slaughtering and rendering;" and we are waiting with interest the result of this petition, a hearing having been granted thereon.

There is reason to believe, that while we may be fully satisfied that the business ought not to be carried on at a place so near our works, and cannot be long continued without contaminating our water-supply, yet that there is no remedy until it can be shown that our water has actually become impregnated with the vile refuse from the slaughter-house. This, of course, cannot be done until the ground has become saturated with corruption; and then it is almost if not entirely beyond remedy: as if vaccination could not be enforced until the person was broken out with small-pox, or sanitary measures could not be legally enforced until the epidemic had already broken out in the community. If this is so, it would seem that it only needed a statement of our case to show how entirely inadequate are our laws in regard to the powers granted to the State Board of Health to protect sources of water-supply.

It only remains for us to go to the Legislature for relief from this imminent danger, and urge upon our law-makers such enlargement of the powers of the Board of Health, that when a plain case is made out, showing that any business must, in the nature of things, result in the pollution of the sources of any water-supply, it can be prohibited at once, without waiting until the damage is done. To an earnest effort in this direction we invite your co-operation.

In view of the importance of this matter, we would recommend that some measures be taken to advise our citizens of our danger in this respect, that all may join, and use all the in-

fluence they have to induce the Legislature to grant the needed relief. The danger does not come from this one slaughter-house alone, bad as it is, but from the fact, that, if one party can make that a good point to carry on the business, then why not another, and another, until that whole neighborhood becomes one great abattoir? There are few places in the towns and cities about Boston that desire this business carried on within their borders; and the permission of Belmont to the building of this slaughter-house is an invitation to all others who would like to engage in this business. With this business will grow up a settlement of houses in the immediate neighborhood which will be also quite objectionable. Already several of these little houses are built with no drainage except into the soil around them. We have thus tried to present this matter to you fully, that you may take whatever steps are necessary before it shall be too late. We think prompt and decided action now is the part of prudence, and will prove to be economy in the end.

In our last annual report we called attention to some bad sewerage matter that was running into the pond on the south-westerly side; and we recommended the building of a sewer from the Cushing-street district in Belmont, around the borders of the pond, to carry this very bad drainage into Alewife Brook. But as yet nothing has been done about it, and we are obliged to report that the nuisance remains still unabated. One reason why nothing has been done about it is, that it was believed the State Board of Health now has the power to call on parties whose drainage pollutes the sources of any water-supply, to take care of the sewerage themselves, in which case this nuisance should be removed by the town of Belmont: a demand has been made on Belmont to stop the drainage from Cushing Street from running into the pond.

Another reason for the delay is, that already three sewers empty from Cambridge into Alewife Brook, where there is not sufficient current to carry away the drainage put into it. Complaints have now been made by adjoining cities and towns, that a nuisance now exists on account of the drainage emptied into Alewife Brook. It is certainly true that the brook is in a filthy condition, and that, too, within a short distance of Fresh Pond; and no doubt can exist but that something

should be done at once to relieve the pond from this danger of pollution.

In our former reports we have repeatedly called your attention to the importance of protecting our water-supply from pollution. New dangers are constantly arising, as our recent experience shows, which will require care, and command attention. It seems plain to us that in some way Fresh Pond and its borders should be controlled by the city of Cambridge.

In view of the public feeling existing at the present time as to the future of our water-supply, it was our intention to treat this matter in our report somewhat in detail; but as a committee has been appointed by the City Council to take the whole matter into consideration, with power to employ experts, and report the results of their labors, we refrain from entering further into the subject at present, awaiting the report of said committee.

We hope that the efforts of the committee may result in having *something done* to remedy existing evils, and, as far as possible, provide against others in the future.

It may not be amiss here to say that nearly every available source of water-supply within fifty miles of Boston has been examined by the ablest experts, both engineers and chemists, as to the quantity and quality of the waters. This information can be had by simply procuring and reading the published reports on the subject: many of these reports are now in possession of this Board or its members.

During the year settlements have been made with certain parties for land-damages and right of way for our conduit from Fresh Pond to our other sources of water-supply, and on this account the following sums have been paid:—

Jacob Hittinger	\$993 58
Warren S. Frost	560 17
William Black	163 86
Richardson & Bacon	252 27
Henry Y. Hill	811 69
Warren S. Frost	241 69
Legal expenses	600 00
	\$3,623 26

The other cases are now in the hands of the City Solicitor for settlement.

We are happy to report the efficiency and faithfulness of our officers and other employees. Our Superintendent has been thorough in looking after his work, and especially in looking for and stopping leaks and waste, working both night and day in this direction. His labors have been rewarded in the very favorable record our pumping shows. The office in charge of our Registrar and his assistants was never in so good condition as now: any information wanted in this department is promptly and correctly furnished. Our engineer shows a year's work of our pumping-engines with but very slight repairs, and a good record on pumping-expenses. In short, we do not think our Water-works were ever so well officered by those employed by this Board, or the works generally in so good condition, as at the present time.

The new system of accounts adopted in this and other departments of the city is now in full working order; and while it is not unfrequently a little annoying to some of our customers, in its details with which they must comply, yet it is arranged with so many checks and counter-checks against errors and dishonesty, that we fail to see how the system can be improved in this respect.

We would again call attention to the importance of improving the piece of land between the pond and Lakeview Avenue, in order to comply with the conditions upon which the Tudor heirs agreed to give it to the city. When the material was first taken out of the pond, its nature was such that nothing would grow on it: it has now been exposed nearly two years, and it should be improved by mixing what is necessary with it to make good soil, and then set out trees and shrubs, and lay it down to grass, in compliance with the conditions of the gift.

We wish to record our obligations to the City Engineer and City Solicitor, for the cheerful and valuable service they have rendered us during the past year, each doing all in his power to assist us when called upon.

So far as we now see, no large amount will be required the coming year for extension account, except for what may be found expedient or necessary to preserve the purity of our water-supply. We have already seen that it is not Fresh

Pond alone that demands attention ; but that any plan, to be at all complete, must include the protection of Little Pond and also the conduit connecting with Fresh Pond.

In due time estimates will be made as to the amounts required for the ensuing year for extension, maintenance, and supply accounts, for which we shall ask the usual appropriations.

We submit herewith the Reports of the Registrar and Superintendent to us, which we adopt as part of our Report, and to which we would refer you for the details of work done, and the present condition of things in their charge.

GEO. P. CARTER,	}	<i>Cambridge Water-Board.</i>
C. W. KINGSLEY,		
SAM'L L. MONTAGUE,		
H. L. EUSTIS,		
JOHN W. LEIGHTON,		
J. WARREN MERRILL,		
GEO. S. SAUNDERS,		

CAMBRIDGE, Dec. 16, 1878.

APPENDIX.

LAST year we sent a communication to your honorable body in reference to the matter of preserving the purity of our water-supply. This was accompanied by a report on the subject made to this Board by the City Engineer. By some means it was not published with our report last year as it should have been. It seems to us that it is a document that ought to be preserved; and we append it to this report, with the request that it may be published as a part of the history of our Water-works in the progress of their development.

TO THE HONORABLE CITY COUNCIL OF THE CITY OF CAMBRIDGE:—

Gentlemen,—Last year a joint special committee of the City Council was appointed “to confer with the Water-Board as to the sources of pollution to our water-supply, and the means of preventing the same.”

From the report of that committee we make the following extract:—

“Fresh Pond is really our reservoir or settling-basin, and should be protected from the constantly increasing drainage on the shores. While no perceptible evil has yet come from this source, yet it is wisdom to provide for the future, and see that the pond is properly protected. To do this, we must control the borders of the pond, and, if possible, the pond itself. And we would therefore recommend that *immediate* action be taken, under the authority that we already possess, to control that portion of the borders connected with the hotel and picnic grounds, and on the south-westerly side, near Cushing Street; and that, after a careful survey has been made and a system of sewerage adopted for this whole territory, then whatever land is shown by the survey to be necessary for the full protection of the pond, and for ultimately building a sewer entirely around it, be taken for that purpose.”

In the last report of this Board made to your honorable body, the following things were recommended for early attention at our hands:—

“ *First*, Secure a strip of land around Fresh Pond, of sufficient width to enable us to preserve the purity of the water in the pond; and we think that the land needed for this purpose can be properly ascertained only by a careful topographical survey of the land around the pond.

“ *Second*, Provide a basin which shall receive nearly all the surface-drainage now coming into the pond, and from which the water can find its way into the pond only after being filtered through a bed of gravel. This, we think, can be done at a very moderate cost, after securing the land.”

It will be seen hereby that your committee and the Water-Board were agreed that *something should be done to “preserve the purity of the water.”* As stated above, the Water-Board thought that a temporary basin could be made to receive and filter the surface-drainage from the Cushing-street district; but in the spring, by advice of the City Engineer, the idea of a filter-dam was abandoned. He was then requested to examine and report what was necessary to be done in order properly to “preserve the purity of the water;” and he has made a report to this Board, a copy of which we submit herewith for your consideration. It will be seen that a very large expense will have to be incurred to carry out the plans needed properly to protect the pond; as the first thing to be done towards carrying out any plan is to secure the needed land around the pond, and as the present authority “to take five rods wide” around the pond is not practicable, for the reasons that the State has never defined the border of the pond, and we should not know where to measure from if we wanted to take five rods wide. Another reason is, that in some places, on account of the lay of the land, more than five rods is needed to do what is necessary.

The Water-Board wishes to do its whole duty in this matter, so as to meet the just demands of our citizens in this most important matter, and would therefore recommend as follows:—

First, That the mayor be requested to take proper action to give notice that the city will apply for authority to take whatever land around Fresh Pond may be found necessary to protect the purity of the water in the pond.

Second, That your honorable body shall provide the means, and do whatever is necessary, to protect the pond from surface and filthy drainage, as set forth in the City Engineer’s report herewith submitted.

TO THE COMMITTEE ON RESERVOIRS AND PUMPING, OF THE CAMBRIDGE
WATER-BOARD:—

Gentlemen,—Early in the season my attention was called to that portion of the borders of Fresh Pond, at the outlet of a small pond situated in what may perhaps be better known as the Strawberry-Hill district, from which some very objectionable drainage, at certain seasons of the year, finds its way into Fresh Pond. I had observed this point for about a year previous; but had never seen any water or sewage passing through the culvert under Cushing Street, and had been assured, in fact, that no open culvert existed, the same having been filled up, and that no water could pass through. Statements to the contrary having been made, it was closely watched in the spring of the present year. In March the water had so accumulated that the pond was filled, and overflowed through the culvert, which proved to be an open one; and continued for several weeks to discharge into a bog north of Cushing Street, and thence into Fresh Pond. The matter was of a very filthy and disgusting character.

The plan of building filter-dams across the two ends of the bog was proposed, and plans prepared at once; but, on further consideration, it became evident that they would not accomplish the object desired. The plan was abandoned; and I was requested to examine, with a view of drainage to some point away from the pond. This proved a rather difficult thing to accomplish, except at great expense, situated as it is, in a low, steep valley of about fifty-three acres, surrounded by high, steep hills, and far away from any suitable point of discharge. It soon became evident that a general system for the whole future drainage of the surroundings of our water-supply should be included and considered; and, in this connection, it may be well to describe what the principal sources of pollution are, and how located with reference to drainage.

First, Strawberry Hill, already mentioned, a drainage area of about fifty-three acres, with steep slopes, and largely covered with houses and many filthy appurtenances, together with two small ponds, the overflow of which is, as before described, into Fresh Pond. Then the Fresh Pond Hotel, the arrangements of which are good; and, if proper care be taken of them, and the vaults not allowed to overflow, need cause no alarm. The house-drainage is delivered on a cultivated field, at some little distance from the pond. The whole should be carefully watched, and proper care insisted on.

The next is Alewife Brook, the natural outlet from Fresh Pond, as well as Little and Spy Ponds. There are at present emptying into this brook three large main sewers, as follows: Concord Avenue,

intended as the outlet of the proposed marginal sewer around Fresh Pond, with a drainage area of 298.21 acres ; Spruce Street, with a drainage area of 382.93 acres ; and North Avenue, with 182.64 acres : the North-avenue and Spruce-street sewers draining, each for a portion of their areas, quite closely populated districts ; Concord Avenue entering it at a point about four hundred feet distant from the pond, the drainage backing into the gate-house on the border of the pond, and kept out from it by a single gate of plank. When the water in the pond is below the level of the brook, as it has been for a considerable portion of the time for several years, any accident happening to the gate causing a leakage, or its removal, would cause a discharge of sewage into it which it might be impossible to remove. With a very small outlay, this might be made secure from danger. Just beyond North Avenue, the brook also receives the drainage of the tanneries of William Muller and Ferdinand Fischer, both large establishments ; all the drainage of these is poured into the brook, and may be seen at the tide-gates on Broadway in considerable quantities, and has been removed at this point for a number of months, as often as once a week. Many complaints are made by the residents of its vicinity ; and it is believed that the recent order of the Fish Commissioners, for the construction of the fishway, is but the entering-wedge for the entire removal of the sewage.

It has been my impression, from my first connection with the city, that, if the waters of Spy and Little Ponds and Wellington Brook are to be used, the drainage from the brook should be removed at the *earliest possible* day. There are times in each year when the meadows are covered, and the whole becomes one vast pond. It hardly seems possible that so much filth as there is emptied into this brook, will not, in times of flood, mix with and contaminate the ponds. On the line of Wellington Brook is the Richardson Piggery, situated quite near it, and with a connecting ditch within a few feet, receiving the washings from it. Above this point, and in Belmont, to near Waverly, there are many places where the house-drainage is discharged directly into the brook, many of the houses being fitted with water-closets and other modern improvements ; while, in other cases, privies are placed directly on the banks, with the matter passing into the water. When last visited, a few weeks since, they were in a most filthy condition. Many of these places might perhaps be removed or improved by direct negotiation with the parties, and having the work done under the direction of the superintendent, thus avoiding litigation ; a process which is slow, and usually not satisfactory to either party.

With regard to the importance of this matter, Dr. Cresson, in his report on an examination of the water from the Schuylkill River, says, in conclusion, “I will briefly enumerate what I deem to be proper steps to be taken to restore and maintain the purity of our water-supply. First, the *diversion* of all sewage now flowing into the pool of Fairmount Dam, below Falls Bridge, into some other channel. Second, the *diversion* of all sewage containing fæcal and animal matter now flowing into the river below Flat Rock Dam, into some other channel.” “Fifth, the cultivation of fish and suitable plant-life in and upon the water of the river.”

Dr. Frankland, Professor of Chemistry in the Royal Institution and Royal School of Mines, says, “In the first place, when water is once contaminated with sewage, there is no process to which it is afterward subjected, which will effectually remove all that sewage contamination from the water. Filtration will not do it, in certain cases, at all events. I have found that the excrement of cholera-patients cannot be filtered out of the water; that after a degree of filtration which, I believe, is never obtained by the water companies, and rarely obtained, perhaps, by the passage over soils in irrigation, this water still remains opalescent from the rice-water evacuations with which it is mixed. I believe that the noxious part in sewage is that which is held in mechanical suspension, not in solution. I would not say it is impossible to remove it, but no system of filtration will secure its removal.

“There are only two processes by which it can be effectually removed: the one is by boiling for a long time, and the other is by distillation; and therefore it is that I say that, inasmuch as these two processes are impracticable on a large scale, in my opinion, water that has once been contaminated by sewage ought not afterward to be used for domestic purposes. And inasmuch as it is generally believed that the noxious matters of sewage exist there in the form of minute germs, which are probably smaller than blood-globules, I do not believe that even filtration through a stratum of chalk could be relied upon to free the water perfectly from such germs.”

Again, Mr. Simon, F. R. S., the medical officer of Her Majesty's Privy Council, says, “Water into which sewage has been discharged is, in relation to the matter now under consideration, an experiment on the health of the population, and I do not think that that experiment ought to be tried. I think the drinking of such water is dangerous. It is not practicable to define the exact line at which danger begins in a particular case. Everybody knows that water with certain obvious pollutions by sewage is fatal to health; and I do not

know where to draw the line, in practice, between such cases and those which are, practically speaking, unimportant."

In the Fifth Report of the Massachusetts State Board of Health we find, "Too much stress cannot be laid upon the importance of *preventing* the discharge of such refuse and sewage, in a restricted sense, into any stream or pond used, or likely to be used, as a source of water-supply." Again: "The second opinion is, that sewage, diluted to a very considerable extent, becomes innocuous. This opinion, which involves questions belonging to the physician rather than to chemistry, is very likely to be carried too far."

"While with a small amount of sewage the chances are as favorable as possible for the action of the atmospheric influences, and the chances of taking up any undecomposed particle of material, capable of propagating disease, are rendered proportionately small to the great dilution, it is to be borne in mind that the action of such matter on the system is not cumulative; a minute quantity may do much harm, because it is now generally believed that it may hold the specific thing which propagates specific diseases." I need not add more. The whole matter is ably discussed in a paper prepared by Julius W. Adams, on the "Pollution of Rivers, as applicable to the future Water-Supply of the City of Philadelphia, 1875."

Having enumerated the principal sources of contamination of the waters of our supply, and the danger that may result therefrom, the question naturally arises: What is the remedy? It seems very clear that the answer is, that they must be prevented from entering the waters.

The long-talked-of marginal sewer around Fresh Pond would secure the water of that pond; and a sewer parallel with, and at a suitable distance from, Alewife Brook, would intercept all the sewers now emptying into it.

The natural outlet for this sewer would be in Mystic River, at a point near its junction with Alewife Brook. As a portion of this sewer would be in Somerville, it is possible that that city would join in its construction; there being, I understand, no present drainage for that section.

The route would be as follows, together with size and approximate cost:—

	Size.	Length.	Cost.
Mystic River to North Avenue,	6' 10"	5,410	\$66,603 00
North Avenue to Spruce Street,	6' 3"	2,500	24,040 80
Spruce Street to Concord Avenue,	5' 3"	3,400	33,000 00
Watertown Br. R.R. to Lakeview Avenue,	3' 0"	2,030	4,269 35
“ “ to Cushing Street,	2' 6"	2,900	5,076 23
		16,240	\$132,989 18

There should also be a branch to Fresh Pond Hotel, not included in the above estimate. The portion from the Watertown Branch Railroad to Cushing Street would be a portion of the marginal sewer around Fresh Pond.

Another route, with outlet in Charles River, and almost entirely within the limits of Cambridge, is as follows : —

	Size.	Length.	Cost.
North Avenue to Spruce Street,	4' 2"	2,500	\$22,904 00
Spruce Street to Concord Avenue,	5' 10"	3,400	33,539 30
Concord Avenue to Mount Auburn Street,	6' 3"	4,960	64,141 36
Outlet sewer in Mount Auburn Street,	6' 9"	3,500	59,259 29
Branch to Strawberry Hill around margin of pond,	2' 6"	2,900	5,076 23
			\$184,920 18

Or by another route : —

To Strawberry Hill,	2' 9"	3,580	\$12,623 50
Making the total cost,			\$192,476 45

For Wellington Brook the sewage should be brought down in a pipe, or the brook abandoned to sewage, and the water brought in a pipe. For the sewage, a small pipe would answer, if it were used only for the present and likely sources of pollution, and not for the main for town drainage. If this water is to be used, I urge the importance of the sources of pollution before named receiving immediate attention. But to return to Strawberry Hill. It is important that before the fall and spring rains occur, something should be done at this point ; and I would suggest, that, if suitable arrangements can be made with the owners, the water be pumped over the intervening hill through a pipe to Bird's Pond. An eight-inch Blake or Knowles pump, with three or four inch discharge-pipe, would, I think, remove all the accumulation to a point where it could not overflow into Fresh Pond. A dam would be required at the northerly end of the small pond at its present outlet, and a small building for the engine. This would need to be run only a portion of the time, the water being allowed to reach a certain height, and then pumped down. The banks are so steep that a considerable increase in depth would but slightly increase the area. The great amount of vegetation and the numerous pond-lilies growing in Bird's Pond would, I think, effectually prevent any nuisance being caused therefrom. If this plan should meet with favor from your Committee, I would suggest that a further and more careful examination be made, with a view to carrying it out at an early day. This is proposed as a temporary measure, until the system of drainage can be carried out.

Respectfully submitted,

W. S. BARBOUR, *City Engineer.*

CAMBRIDGE, Sept. 28, 1877.

REPORT

OF

THE WATER REGISTRAR.

WATER REGISTRAR'S OFFICE,
CAMBRIDGE, Dec. 16, 1878.

TO THE WATER BOARD:—

The undersigned herewith presents his Third Annual Report, showing the “receipts, expenditures, and abatements” for the year ending Nov. 30, 1878, together with a statement of the number of water-takers, fixtures, &c., and other matters in his department, as required by ordinance.

Receipts.

Water rates	\$132,447 82	
Meter rates	20,084 20	
		\$152,532 02
Water rates for previous years .	\$1,308 94	
Meter rates for previous years .	239 69	
City rates for 1877	4,357 50	
		5,906 13
		\$158,438 15
Off and on water, seals and fines .	\$1,316 59	
Rent of house at pipe-yard . . .	140 00	
		1,456 59
		\$159,894 74
Less water rates refunded		994 24
		\$158,900 50
Supplies and repairs	\$2,829 38	
Old material sold	955 51	
		\$3,784 89
		\$162,685 39

Received by Registrar, and paid to City Treasurer	\$8,730 09
Received by City Treasurer, and reported to Registrar	153,955 30
	\$162,685 39

*Expenditures.*¹

Construction account	\$12,752 55
Supply account	1,754 79
Maintenance account, viz. : —	
Care and repairs	\$14,028 32
Pumping-service	5,920 15
Office expenses	5,280 59
	25,229 06
Total	\$39,736 40

Abatements.

Abatements have been made during the year to the amount of	\$11,619 13
Water rates have been refunded, for houses shut off or fixtures sealed, to the amount of	994 24

By the new system adopted the present year, reports are made monthly to the City Auditor of amount of bills placed in the Treasurer's hands for collection during the preceding month. Report being made of annual bills for all houses where water is on, at or just previous to July 1, necessitates abatement of all charges upon fixtures sealed, or houses shut off (whether per order of owners or for non-payment), before the books can be balanced. New charges are then made when the water is again let on. This has caused the above large amount of abatements.

Water has been shut off for non-payment of rates, or per order of owners on account of vacancy, and seals have been applied by request of owners or occupants, as follows : —

Houses shut off in 1878	523
Houses let on in 1878	353

¹ See Auditor's Report for detailed statement of expenditures.

Houses let on (shut off in previous years)	.	.	.	92
Seal-locks applied to fixtures in 1878	.	.	.	1,114
Seal-locks removed from fixtures in 1878	.	.	.	385
Seal-locks removed (put on in previous years).	.	.	.	248

Water rates unpaid Nov. 30	.	.	.	.	.	\$826	52
Meter rates unpaid Nov. 30	.	.	.	.	.	173	63
City rates unpaid Nov. 30	.	.	.	.	.	7,164	65
Supplies and repairs Nov. 30	.	.	.	.	.	893	95

Total	.	.	.	.	.	.	.	\$9,058	75
Also charges for supplies and repairs prior to May 1, 1876	.	.	.	.	.	.	.	6,335	21

Statement of the yearly revenue received from water rates since the purchase of the works by the city.

From April 28, 1865, to Dec. 1, 1865	.	.	.	\$32,367	19
Dec. 1, 1865	"	1866	.	40,073	27
"	1866	"	1867	52,733	62
"	1867	"	1868	63,747	42
"	1868	"	1869	76,149	30
"	1869	"	1870	92,606	95
"	1870	"	1871	111,782	65
"	1871	"	1872	127,201	30
"	1872	"	1873	146,117	32
"	1873	"	1874	153,634	27
"	1874	"	1875	138,880	37
"	1875	"	1876	179,166	76
"	1876	"	1877	\$158,078	11
Less refunds	.	.	.	3,234	52
				154,843	59
From Dec. 1, 1877, to Dec. 1, 1878				\$158,438	15
Less refunds	.	.	.	994	24
				157,443	91

COMPARATIVE STATEMENT.

	1877.		1878.	
CONSTRUCTION ACCOUNT.				
Received		\$15,881 98		\$12,752 55
Expended		15,881 98		12,752 55
SUPPLY ACCOUNT.				
Received, —				
Supplies and repairs	\$6,204 86		\$2,829 38	
Old material sold	626 54		955 51	
		\$6,831 40		3,784 89
Expended		4,107 04		1,754 79
Excess of receipts		\$2,724 36		\$2,030 10
MAINTENANCE ACCOUNT.				
Received, —				
Water rates, less refunds	\$154,843 59		\$157,443 91	
Off and on water, seals, and fines	1,360 30		1,316 59	
Rent and insurance premium	151 25		140 00	
		\$156,355 14		\$158,900 50
Expended, —				
Care and repairs	\$9,520 56		\$14,028 32	
Pumping service	7,564 49		5,920 15	
Office expenses	5,527 39		5,280 59	
Interest on water debt	90,000 00		90,960 00	
Paid to Sinking-Fund Commissioners	45,000 00		45,480 00	
		157,612 44		161,669 06
Excess of expenditures		\$1,257 30		\$2,768 56
1877. Supply Account, — Excess of Receipts \$2,724 36				
Maintenance Account, — Excess of Expenditures 1,257 30				
Balance \$1,467 06				
Excess of Total Receipts over Total Expenditures.				
1878. Maintenance Account, — Excess of Expenditures \$2,768 56				
Supply Account, — Excess of Receipts 2,030 10				
Balance \$738 46				
Excess of Total Expenditures over Total Receipts.				

The usual annual examination of premises has been made, and the office-list of fixtures changed in accordance therewith.

102 new supplies have been laid during the year, 9 of which have not yet been paid for, or water let on.

18 meters have been placed in use in various locations during the year, and 10 have been removed: 126 meters are now in use.

Besides the manufactories, &c., supplied by meter, water is now supplied to

9,838 Families.

732 Stables.

395 Shops, stores, and offices, by the following fixtures, viz. :

11,821 Faucets.

3,183 Wash-basins.

1,696 Wash-tubs.

1,641 Bath-tubs.

3,911 Pan-closets.

554 Slop-closets.

20 Hopper-closets.

74 Urinals.

65 Yard-hydrants.

6 Fountains.

1,034 Hose.

4 Tumbler-washers.

The above is exclusive of the school-houses, engine-houses, police-stations, and other city buildings, using the additional number of

76 Faucets.

30 Wash-basins.

4 Bath-tubs.

5 Urinals.

31 Pan-closets.

12 Door-closets.

5 School-closets.

4 School-urinals.

49 School-sinks.

6 Stables.

6 Hose.

1 Steam-engine.

582 Fire-hydrants.

14 Fire-reservoirs.

14 Drinking-fountains.

5 Garden-hydrants.

Respectfully submitted,

J. WARREN COTTON, *Registrar.*

REPORT
OF THE
SUPERINTENDENT OF THE WATER-WORKS.

CAMBRIDGE, Dec. 4, 1878.

TO THE PRESIDENT AND MEMBERS OF THE CAMBRIDGE WATER-BOARD:

Gentlemen, — The Annual Report of your Superintendent, upon the condition of the works and the operations of the past year, is herein presented.

Little Pond, Wellington Brook, and Conduit.

The pipe connection of Little Pond with Spy Pond is in good order, but has not been used this year. Additional facility of flowage from Spy Pond into Alewife Brook has been obtained by digging a ditch four feet wide along the east side of the box-culvert formerly and still in use for the same purpose. Nothing else has been done upon the borders of either of the ponds, and the water of both has presented a much better appearance the past year than during that which preceded it.

Inspections have been made of Wellington Brook and its branches during the season, but nothing has been found impairing the purity of its water beyond what existed at date of last report. Water has been drawn from this source for a few days only, in February last, when occurred a very heavy rainfall.

Such examinations as can be made while in use show the filter-basin, and the conduit thence to Fresh Pond, in good order and working condition, which is true also of the gates and gate-houses. No repairs have been made, except that the Wellington Brook flume has been cleaned out, and the wood-work,

above water, has received a coating of asphalt. Water has been delivered into Fresh Pond, from the filter-basin at Little Pond, since July 26. At that date Fresh-Pond gauge read 14.23, Little-Pond gauge 15.20, and about the same relative heights have been maintained since.

Fresh Pond.

The borders of the pond have remained in substantially the same condition as at date of last report. Large amounts of weeds have been removed during the summer; and repairs have been required upon the stones facing the banks of the easterly side, many of them having been displaced by storms. Alewife Brook gate-house and the screen-house have been painted and put in good condition.

Pumping-Works.

The conduit, pump-wells, and gates appear in perfect condition, no interior inspection having been deemed necessary. The grounds about the pump-house have been somewhat improved by additional filling in places that had settled, and they now present a neat and attractive appearance. The boiler-room has been whitewashed, and a vane erected on the pump-house, with an indicator inside the building. Mr. E. C. Brooks, the engineer, reports the engines and boilers in perfect condition, and that the repairs have been of a trivial nature.

One leak has occurred, and been repaired, upon the pumping mains.

Reservoirs.

The interior of the stand-pipe has been whitewashed and painted, provision has been made for ventilation, and both the interior and exterior are in thorough repair. A chronograph has been set up, which automatically notes the fluctuations in height of the water surface of the reservoirs. Its nightly records are of particular value in promptly detecting the existence of any unusual draught, from leakage or otherwise.

By contract with W. C. Poland & Son, the north-east wall of the large reservoir has been rebuilt in a complete and satisfactory manner. The renewal of the fence abutting the Reed

estate also became necessary. Whilst the wall was rebuilding, the reservoirs remained drawn down materially, until the completion of the work. Upon refilling them, leakage through the west banks was apparent, making its appearance under the coping of the retaining-wall for nearly the whole length on Reservoir Street; and large quantities of water were found to be flowing under the supply-pipe to the large reservoir, finding its way to the sewer in Reservoir Street, attended with injury to the banks near the stand-pipe. Repairs were made under direction of the City Engineer, which consisted of cut-off walls of concrete about three feet thick at each end of the partition between reservoirs; removing portions of reservoir paving on both sides of partition coping-stones, and filling all vacant space beneath with grout; rebuilding the overflow well and the southerly gate-chamber, repairing banks, calking and pointing joints in reservoir, paving and coping stones. Slight leakage appeared upon refilling the reservoirs, through the joints of the coping-stones, particularly where they rest on the paving-stones of the interior; and a grout wall behind the coping, to a depth somewhat below the top of the interior paving, may become necessary to resist the action of the frost. There is undeniable evidence of slight changes in the retaining-wall north of the stand-pipe, but no repairs have been made the past season. A blind drain has been built obliquely across Reservoir Street, from near the north-west corner of the wall foundations to the sewer, with a manhole at the junction.

Distribution-Pipes.

Very little has been done the past season. Connection has been made of the North-avenue pipes at Porter's Station bridge; new eight-inch and ten-inch pipes have been laid in Bridge and Prison-Point Streets, to obtain abundant fire-supply; and four-inch and six-inch pipes have been substituted for a smaller size, in Essex Street. About three-quarters of a mile is the total of pipe laid. Owing to alterations of grade, the pipes in Allston Street, near Fort Washington, and in Sparks Street, near Concord Avenue, have been lowered. Several gates have been set, for more perfect control, in the Cowperthwaite-street

and the Cambridge-street districts ; any general raising of pipes in these localities, however desirable, being postponed for the present.

Supply-Pipes.

One hundred and two new service-pipes have been laid, increasing the total of last year to 7,058. Only the best of materials, with good workmanship, are allowed. Most leakage occurs from the supply-pipes. One hundred and eighty-six leaks have been stopped the past year, only thirty-five of which were on pipes of four inches and upwards. During this year systematic labor at night, by disconnecting small sections, and making thorough examinations and tests for discovering the condition of the pipes, has been attended with generally satisfactory results. I am convinced that the leakage from pipes is now comparatively small ; that constant vigilance, with nightly tests, is necessary to maintain this condition ; and that much more water is wasted from fixtures than is now leaking from the pipes. Instances have been detected of reckless and long-continued abuse in this matter, and many undetected cases probably exist.

Hydrants, Meters, Fountains, and Stand-Pipes.

Eight new post-hydrants have been set in new locations, and two have replaced old flush-hydrants. All but one are of the "Pattee and Perkins" pattern. The total number is 581, of which 235 are post and 346 flush hydrants. Two new garden-hydrants have been set, making the present total 103.

Eighteen new meters have been set, and 10 disconnected, the total number being now 126. Other changes have been made with advantage, usually by substituting small-sized meters for those needlessly large in capacity.

Seventeen drinking-fountains are in use, located as described in annexed table. Those recently set have improved drainage facilities, and all fixtures are self-closing. Thirty-six stand-pipes, for street-watering, have remained in use the past year, but one change of location being made. Fountains and stand-pipes are in good order.

Pipe-Yard.

The yard on Auburn Street has been enlarged, a new stable has been built, the wagons put in thorough repair, the dwelling-house painted outside and inside, its walls papered, and some grading done, until the whole is in complete order.

The following tables show the monthly amount and daily average of water pumped, the Fresh-Pond record of water height, the locations of meters, fountains, and stand-pipes, the details of main and supply extensions, and the account of stock on hand.

All which is respectfully submitted,

HIRAM NEVONS, *Superintendent.*

APPENDIX.

ENGINE RECORD.

THE AMOUNTS OF WATER PUMPED BEING COMPUTED FROM ENGINE REVOLUTIONS.

IN THE MONTH OF—	RUNNING TIME.		Pounds of Coal used.	MONTHLY TOTALS.	DAILY AVERAGE.
	Hours.	Minutes.		Gals. pumped.	Gals. pumped.
December, 1877 . .	289	35	133,100	64,366,500	2,076,339
January, 1878 . .	323	50	138,700	73,082,100	2,357,487
February, “ . .	267	45	118,000	61,502,100	2,196,503
March, “ . .	281	35	122,300	62,796,300	2,025,690
April, “ . .	265	25	114,400	59,008,200	1,966,940
May, “ . .	310	30	122,000	71,400,900	2,303,255
June, “ . .	310	..	122,600	73,396,200	2,446,540
July, “ . .	372	35	152,400	89,212,200	2,877,813
August, “ . .	322	30	135,900	71,565,300	2,308,558
September, “ . .	308	5	125,000	69,424,800	2,314,160
October, “ . .	308	55	127,700	69,793,800	2,251,413
November, “ . .	263	45	116,600	58,326,000	1,944,200
Totals . . .	3,624	30	1,528,700	823,874,400	
Daily average for year	9	56	4,188	2,257,190	

FRESH-POND RECORD.

	Fect.
Average height of water-surface during December, 1877	14.65
“ “ “ “ January, 1878	14.86
“ “ “ “ February, “	15.18
“ “ “ “ March, “	16.03
“ “ “ “ April, “	16.16
“ “ “ “ May, “	16.09
“ “ “ “ June, “	15.43
“ “ “ “ July, “	14.55
“ “ “ “ August, “	14.54
“ “ “ “ September, “	14.22
“ “ “ “ October, “	13.78
“ “ “ “ November, “	13.84
Average of preceding heights	14.95
Highest water observed (high water) is	16.85

LIST OF METERS IN USE NOV. 30, 1878.

	Locality.	Size.	Description.
		Inch.	
American Net and Twine Co.	Third St.	1½	Worthington.
Atkins, Henry	North Ave.	5⁄8	Harris.
Brown & Nichols	Brighton St.	1	Worthington.
Boston Car-Wheel Co.	Hampshire St.	¾	"
Boston & Albany R. R.	Putnam Ave.	1½	"
Boston & Lowell R. R. (repair-shop)	Prison Point	2	"
" " " (old roundhouse)	" "	2	"
" " " (new roundhouse)	" "	2	"
" " " (paint shop)	" "	1	"
" " " (stand-pipe for feeding locomotives)	" "	6	Union Rotary.
Boynton Packing Co.	Winsor St.	1½	Worthington.
Boston Chemical Works	Third St.	¾	"
Bullock, O. S.	Broadway	1	"
Boston Rolling Mills	Portland St.	2	"
Boston Stamping Co.	Third St.	2	"
City of Cambridge (Ward 1 Building)	Brattle Sq.	2	"
" " (Alms-house)	Tannery St.	2	"
" " (Ward 4 Building)	Green St.	2	B. & F.
Cambridge Gas-Light Co.	Third St.	2	Worthington.
Cofran, S. M.	Vassal Lane	2	"
Clark, B. P. & Co.	Main St.	1½	"
Harvard College (Boylston Hall)		1	"
" " (in yard)		1½	"
" " (Thayer Hall)		1½	"
" " (Holworthy Hall)		¾	"
" " (Stoughton Hall)		1	Boston Machine Co.
" " (Dining Association, Memorial Hall)		2	Worthington.
" " (Boat-house)	Flagg St.	¾	B. & F.
" " (Holyoke House)		2	Worthington.
" " (Botanical Garden)		1	"
Coolidge, Jos. G.	Coolidge Ave.	1	"
City of Cambridge (Cambridge Cemetery)		4	"
Carr Brothers	Lopez St.	1	"
Corning & Co.	Belmont St.	5⁄8	"
Draper, F. & Co.	Otis St.	¾	"
Dover Stamping Co.	Pleasant St.	1	"
Davis, Curtis, & Co.	Broadway	1½	"
Davis, Jas. C., & Son	"	1	"
Denham, George A., & Co.	Thorndike St.	1	"
Dailey, William	Cambridge St.	1	"
Eagle Rubber Co.	Potter St.	2	"
French, C. A.	Farwell Place	1	"
Felton Hall	Cambridge St.	1½	"
Fitzpatrick, Alfred	Sands St.	¾	"
Geldowsky, F.	Otis St.	1	"
Griffin & Dolan	Decatur St.	¾	"
Gould, Patch, & Co.	Cambridge St.	2	"
Goepper Brothers	Gore St.	¾	"
Houghton, H. O., & Co.	Blackstone St.	1	"
" " " (fountain)	" "	¾	"
Hancock & Greeley	Broadway	1½	"
Hews, A. H., & Co.	Cresecent Ave.	1	"

LIST OF METERS IN USE NOV. 30, 1878—*Continued.*

	Locality.	Size.	Description.
		Inch.	
Hale, Teele, & Bisbee	Davis St.	1	Worthington.
Hixon, Edward	Harvard St.	$\frac{3}{4}$	"
Hovey's Nursery	Cambridge St.	1	"
Jones, C. L., & Co.	Pearl St.	$\frac{3}{4}$	"
Jaynes & Co.	Pacific St.	$\frac{3}{4}$	"
Kennedy, F. A.	Green St.	1	U. R. P.
Kendall & Roberts	Main St.	$\frac{3}{4}$	W.
Harvard Laundry	Douglass St.	$\frac{3}{4}$	B. & F.
Little, Brown, & Co.	Blackstone St.	1	Worthington.
Low, J. W.	Reed St.	$1\frac{1}{2}$	"
Lewis, F. H.	Broadway	1	"
Lowe, E. D.	Portland St.	$\frac{3}{4}$	"
Lincoln, Chamberlin, & Co.	Distillhouse St.	2	"
Mount Auburn Corporation (greenhouse)	Brattle St.	1	"
" " " (cemctery)	" " "	$1\frac{1}{2}$	"
Mason & Hamlin Organ Co. (east wing)	Broadway	1	"
Middlesex Bleachery	Sacramento St.	$\frac{3}{4}$	"
Middlesex County (House of Correction)	Thorndike St.	2	"
" " (Court-house)	" "	$2-\frac{3}{4}$	B. & F.
" " (Registry of Deeds)	Otis St.	$\frac{3}{4}$	Worthington.
Moering, Mrs. A. L.	Main St.	$1\frac{1}{2}$	"
Murdock, Robert	Hews St.	$\frac{3}{4}$	B. & F.
New England Glass Co.	North St.	2	Worthington.
" " Brick Co.	Raymond St.	$1\frac{1}{2}$	"
Orne, C. P.	Main St.	1	"
Page, George G., & Co..	Hampshire St.	2	"
Ela, Richard	Broadway	1	"
Pike, Jas., & Co.	Church St.	1	"
" " "	Farwell Place	$\frac{3}{4}$	"
Parry, C. E.	Raymond St.	$\frac{3}{4}$	"
Revere Sugar Refinery	Water St.	3	"
" " "	" "	3	U. R. P.
Reardon, John, & Son	Pearl St.	$\frac{3}{4}$	Worthington.
" " "	Allston St.	4	"
Reversible Collar Company	Arrow St.	1	"
Rogers, G. M.	Washington St.	3	"
Rhoades, Silas, & Co.	State St.	2	"
Shaw & Applin	Bridge St.	$1\frac{1}{2}$	"
Sortwell & Co.	Distillhouse St.	2	"
Squire, John P., & Co.	Gore St.	$2-2\frac{1}{2}$	"
" " "	" "	1	"
Sands, J. L.	Walden St.	$\frac{3}{4}$	"
Standard Ammonia Co..	Potter St.	$\frac{3}{4}$	"
St. Mary's School	Harvard St.	$\frac{3}{4}$	"
" Catholic Church	Norfolk St.	2	"
Stiles, J. C.	Cambridge St.	2	"
Shorey, George L.	Soden St.	$1\frac{1}{2}$	"
Scorgie, Wight, & Co.	Mt. Auburn St.	$\frac{3}{4}$	"
Thayer, Henry, & Co.	Broadway	2	"
Tower, Sylvester	"	1	"
Tug "Henry Chapel"	First St.	2	"
Thorndike, Edward	Main St.	$\frac{5}{8}$	B. & F.
Union Railway Co.	Cambridge St.	$1\frac{1}{2}$	Worthington.
" " "	Dunster St.	$\frac{3}{4}$	"
" " "	" "	$\frac{3}{4}$	"

LIST OF METERS IN USE NOV. 30, 1878 — *Concluded.*

	Locality.	Size.	Description.
Union Railway Co.	Dunster St.	Inch. 1	Worthington.
" " "	" "	$\frac{3}{4}$	"
" " "	" "	$1\frac{1}{2}$	"
" " "	Mt. Auburn St.	2	"
" " "	Main St.	1	"
" " "	North Ave.	2	"
" " "	Baldwin St.	1	"
" " "	" "	1	"
" " "	River St.	1	"
Union Glass Co.	Webster Ave.	1	"
" " "	" "	1	"
Uhrig, Jos.	Main St.	$1\frac{1}{2}$	"
Wyatt, H. M.	Dublin St.	$\frac{3}{4}$	"
Walworth Manufacturing Co.	Main St.	$1\frac{1}{2}$	"
Wilson, John, & Son	Holyoke St.	1	"
Woodbury & Co.	Otis	2	B. & F.
Welch, Bigelow, & Co.	Brattle St.	$\frac{3}{4}$	"
Woods, George, & Co.	Main St.	2	Worthington.
Woodbury & Co.	Green St.	1	"

List of Drinking-Fountains, Nov. 30, 1878.

Bridge, junction of Cambridge Street.
 Broadway, south-west corner of Norfolk Street.
 Brattle Square, east side of Brewer's Block.
 Brattle Street, junction of Fresh-Pond Lane.
 Cambridge Street, south corner of Fifth Street.
 Central Square, west side.
 Central Square, east side.
 Fort Washington.
 Hampshire Street, junction of Broadway.
 Inman Square, east side.
 Main, junction of Front Street.
 Main, junction of Mount Auburn Street.
 North Avenue, south-west corner of Walden Street.
 North Avenue, north side, west of Cameron Street.
 Putnam Avenue, south-west corner of Pearl Street.
 Third Street, west side, north of Main Street.
 Harvard Square, at the flag-staff.

List of Stand-pipes (for Street-Watering), Nov. 30, 1878.

Brattle Street, near University Press.
Brattle Street, corner of Sparks Street.
Brattle Street, near Fayerweather Street.
Brattle Street, near Fresh-Pond Lane.
Bridge Street, junction of Cambridge Street.
Broadway, near Third Street.
Broadway, corner Sixth Street.
Broadway, corner Winsor Street.
Broadway, junction Hampshire Street.
Brookline Street, corner Putnam Avenue.
Cambridge Street, near Warren Street.
Cambridge Street, near Winsor Street.
Cambridge Street, at Inman Square.
Columbia Street, near Austin Street.
Concord Avenue, at junction of Garden Street.
Dana Street, at corner of Chatham Street.
Dublin Street, near Fitchburg Railroad.
Fifth Street, near Thorndike Street.
Gore Street, west of Third Street.
Green Street, near Western Avenue.
Harvard Street, corner of Prescott Street.
Inman Street, near Broadway.
Kirkland Street, near Quincy Street.
Main Street, near Portland Street.
Main Street, near Hancock Street.
Magazine Street, opposite Warland Street.
Mount Auburn Street, near Athens Street.
North Avenue, near Common.
North Avenue, corner of Sacramento Street.
North Avenue, near Forest Street.
North Avenue, near Beech Street.
North Avenue, near Spruce Street.
North Avenue, corner of Norris Street.
Third Street, near Rogers Street.
Thorndike Street, near Third Street.
Western Avenue, near Howard Street.

NEW MAIN PIPE LAID FOR EXTENSIONS AND RENEWALS,
FROM DEC. 1, 1877, TO NOV. 30, 1878, INCLUSIVE, WITH THE
NUMBER OF NEW GATES AND FIRE-HYDRANTS USED.

LOCATION.	IRON PIPE.		GATES.		FIRE HYDRANTS.	
	Size.	Length.	No.	Size.	No.	Size.
	Inch.	Feet.		Inch.		Inch.
Sparks Street, west of Concord Avenue	8	3	..	..	1	5
" " " " "	6	7	..	..	..	..
Jefferson and Warren Streets	4	3	1	4	..	..
Potter and Warren Streets	4	3	1	4	..	..
" " Bedford Streets	4	3	1	4	..	..
River Street, extension of blow-off	6	8	..	..	..	..
Prison-Point Street	8	650	2	8	1	5
" "	6	12	..	..	..	..
Bridge Street	12	10	1	12	2	5
" "	6	20	1	10	..	..
" "	8	678	1	8	..	..
" "	10	673	3	6	..	..
Lambert Avenue, west from North Avenue	6	250	1	6	1	5
North Avenue, at Porter's Bridge *	10	72	1	10	..	..
Bristol Street, west from Webster Avenue	4	180	1	4	..	..
Waverley Street, at Fort Washington	4	10	1	4	..	..
Allston Street, at Magazine Street	4	175	..	..	1	5
" and Waverley Streets	4	278	1	4	..	..
Pearl Street, corner of Allston Street	6	10	..	..	1	5
Hastings Square	4	111	..	..	..	..
Blackstone Street, at H. O. Houghton's (renewal)	{ 4 3	{ 39 4	{ 1 1	{ 4 3	{ 1 ..	{
Mill Street, near Holyoke Street	6	8	..	..	1	5
De Wolf and Cowperthwaite Streets	4	2	1	4	..	..
Charles River and Mill Streets	..	..	2	4	..	..
Flagg Street, corner of Banks Street	4	2	1	4	..	..
Kirkland and Sumner Streets	4	3	1	4	..	..
" " Irving Streets	4	3	1	4	..	..
Avon and Shepard Streets	4	3	1	4	..	..
Essex Street (renewal)	6	466	additional. 1 4		1	5
" "	4	624				
Follen Street (renewal)	4	125	..	..	..	..

PIPE LOWERED ON ACCOUNT OF CHANGE OF GRADE OF
STREET.

	IRON PIPE.			IRON PIPE.	
	Size.	Length.		Size.	Length.
	Inch.	Feet.		Inch.	Feet.
Sparks Street	6	218	Allston Street	4	220

FOR SUPPLIES (GALVANIZED PIPE AND BRASS FITTINGS).

	2½ In.	2 In.	1½ In.	1¼ In.	1 In.	¾ In.	½ In.
Length of galvanized iron pipe .	16	175	320	420	110	210	..
Elbows	..	..	40	81	80	10-¾'' 66-½''	50
Street elbows	..	..	..	..	34	79	..
Couplings	..	100	20	33	247	157-½''	150
Unions for lead pipe	..	..	..	..	..	10	..
Unions	..	6	10	26	10	..	..
Stopcocks	..	..	..	..	..	..	..
Stop and waste cocks	..	..	3	..	25	13	..
Screw-cocks	..	..	3	1	4	24	..
Corporation cocks	..	..	5	..	..	2	..
Screw-cocks for cement-pipe	..	..	..	..	56	..	..
Sidewalk-cocks	..	..	..	..	57	10	..
Blow-off cocks	..	..	6	..	..	..	..
Hydrant-cocks	..	..	..	..	2	2	..
Sill-cocks	..	..	..	..	..	3	..
Hose-bibbs	..	..	..	..	12	7	3
Air-chambers	..	..	..	..	45	58	52
Socket-ends	..	..	..	..	..	158	..
Lock-nuts	..	..	..	..	137	35	14
Nipples	..	2	10	90	20	20	127
Hose-nipples	..	..	..	..	..	..	..
Plugs	..	..	17	7	35	..	..
Bushings	..	..	..	..	..	40	..
Clips	..	..	..	..	..	75	..
Ts	..	62-2''	35-1½''	40-1¼''	76-1''	345-¾''	60-½''
	..	47-1½''	28-1¼''	50-1''	59-¾''	380-½''	..
	..	33-1¼''	25-1''	34-¾''	..	..	..
	..	40-1''	36-¾''	..	..	..	..
Crosses	..	24-2''	28-1½''	50-1''	..	..	..
	..	21-1½''	20-1¼''	40-¾''	..	60-¾''	..
	..	23-1¼''	20-1''	..	..	..	..
	..	15-1''	13-¾''	..	..	..	..

1,252 seal-locks, 1 water-motor, 1 lathe, 2 garden-hydrants, 40 picks, 1 large boom-derrick, 2 small derricks, 2 paving-rammers, 4 iron bars, 4 chains, 12 lanterns, 1 drilling-machine, 1 thread-cutting machine, 1 large hand-pump, 1 platform-scale, and the necessary small tools for laying main and supply pipes. At stable: 2 horses, 3 harnesses, 4 wagons, 1 pung, 2 hand-carts, 1 hay-cutter. At pumping-works: about 650 tons of coal, and the necessary tools for making ordinary repairs, in charge of the engineer.

REPORT

OF

THE SCHOOL COMMITTEE FOR 1878.

THE School Committee for 1878 beg leave to offer the following report.

The Committee, at the beginning of the year, made arrangements for a large portion of their duties by the appointment of the following sub-committees:—

	CHAIRMAN.
On the High School	Andrew P. Peabody.
On the Training School	“ “ “
On Evening Schools	William A. Munroe.
On the City School	William F. Richardson.
On Drawing	Henry Hinckley.
On Truant Officers	James H. Hall.
On Rules and Regulations	John O'Brien.
On Schoolhouses and Hygiene	Edmund H. Stevens.
On Salaries	Asa P. Morse.
On Text-Books	Horace E. Scudder.
On Music	Frank Foxcroft.
On Accounts and Estimates	George R. Brine.
On Examinations and Promotions	Edward R. Cogswell.
On Sewing	Edmund H. Stevens.

Mr. Hinckley having resigned his place on the Board, his successor, Sumner Albee, Esq., has served in his stead as chairman of the sub-committee on Drawing.

We propose, in our present report, first to present a synopsis of the reports of the above-named sub-committees, and then to offer such comments on the past and suggestions as to the future working of our school system, as may be deemed of sufficient importance to be made public.

The High School

maintains its rank as second to no similar institution in the Commonwealth, whether as a fitting-school for college, or as a seminary for the higher education of those whose school-life will extend no further. During the larger part of the year, the absence of the principal has demonstrated at once the worth of his services, and the ability and faithfulness of those on whom the chief charge of the institution devolved during his protracted illness. For the whole of this period Mr. William F. Bradbury discharged the duties of acting principal, in addition to those belonging to his office as a classical teacher; and to his energy and efficiency, to his mature professional experience, and to the well-won confidence reposed in him by all interested in the school, it is mainly due that the classes showed no appreciable deficit in the quality or quantity of their work. Mr. Williston has now resumed his charge, with health so far restored as to enable him to perform all its duties, and to give reasonable hope that he may continue them without further interruption. This we earnestly desire. While as a teacher he brings into practical use his thorough scholarship, pure taste, and elegant culture, his work as principal can be fully estimated only by its suspension. Its very thoroughness conceals its methods. The quiet, patient vigilance, and unwearying industry, by which the whole system is operated with the least possible friction, with the utmost freedom desirable for the individual teachers, and with a discipline so wisely preventive and repressive that it seldom needs to be penal, are fully appreciated by the Committee, and ought to be recognized by all who are interested in the school. This emphatic mention is the more appropriate in the case of one who is at no pains to press his own claims to high and grateful regard, and spares no pains to promote the efficiency of his assistant teachers and to secure for them the reputation they deserve. At the annual examination the report of the members of the full Board was for the most part such as to give the highest credit both to teachers and pupils. There were, however, two exceptions. In one room the order of the scholars was complained of with some severity; in another, the class was said to appear listless and indifferent. It is to be hoped that these censures will prove themselves to have been due to casual circumstances, and not to permanent causes.

The Training-School

has maintained its high standing. Its last graduating class was small ; but we doubt whether the closing exercises of any previous year have indicated more thorough work on the principal's part, or greater diligence and receptivity on the part of the pupils. The class of the present year is much larger, and of the best promise. The Grammar and Primary School classes connected with the Training-School, for several years continuously under the same teachers, are justly regarded as model schools, and as such are invaluable in their educational service to future teachers. By a recent order of the School Committee, the principal of the Training-School exercises a supervision over such of its graduates as are employed in our public schools. It is believed that this arrangement will greatly enhance the usefulness of the Training-School, both by virtually lengthening for its pupils the period of their connection with it, and by facilitating the prompt introduction of advanced ideas and improved methods in the art of teaching.

The Evening Schools

have been attended with the usual interest, and conducted with their wonted success. From the nature of the case it is impossible to approach an accurate estimate of the benefit derived from these schools ; but the fact that attendance upon them is voluntary and unsolicited, and for the most part regular and punctual, may indicate the value placed upon them by those most interested in them.

The City School,

writes the chairman of the Committee in charge of it, "has one teacher. On Dec. 21 the number of scholars was thirty-five, — six girls and twenty-nine boys, — their ages between seven and fifteen years. Thirteen of the boys and one girl were sentenced to the institution for *truancy*. The remaining twenty-one belong to the almshouse proper. These children are divided into

Three Primary Classes	First, Second, Third ;
Three Grammar Classes	Fourth, Fifth, Sixth :

which give the teacher ample scope for her time and patience. The school is thriving under her excellent management, and the accommodations are very pleasant and ample. For the example of scholars in our public schools, it ought not to be an easy matter for those sentenced for habitual truancy to be pardoned out before the expiration of their sentence. There are two boys who are under and serving out their second sentence for truancy."

Drawing.

The following table will show the attendance at the Evening Drawing Schools, for the term 1877-78: —

Number of evenings in session	.	.	.	.	.	50
Number of different pupils registered	.	.	.	.	.	133
Average attendance	.	.	.	.	.	57
Number of teachers	.	.	.	.	.	4
Average number of pupils to a teacher	.	.	.	.	.	14.2
Cost of instruction for each pupil	.	.	.	.	.	\$12.28

June 27, the following order was passed, at the recommendation of the High School Committee: —

"That from and after the present school year Drawing, as a separate branch of instruction in the High School, be discontinued, and that provision be made in the Evening Drawing School for such pupils of the High School, of a suitable age, as desire instruction in drawing."

The Drawing Schools for 1878-79 report: —

Number of different pupils registered	.	.	.	.	.	199
Average attendance	.	.	.	.	.	77
Number in attendance belonging to the High School	.	.	.	.	.	28

At the close of the last school-year, Mrs. Emeline F. Bowler resigned the office as supervisor of drawing, in virtue of which she had for two years not only taken the general superintendence of that department, which is found to be of even unanticipated importance and value in the primary schools, but had given a complete course of instruction to the teachers of those schools. Her work had the hearty approval of the Committee, as expressed by their unanimous vote; and its highest merit

is that it is no longer needed, as she has enabled most or all of her pupils to become efficient and successful teachers.

The Committee on

Truant-Officers

report as follows : —

“ The Committee having charge of the truant-officers desire that the efficiency of the present force should be recognized in the coming report, — first, because the Committee had no complaints to make ; and, secondly, because they had heard of none from the teachers.’ At a meeting, with all the officers present, we found that they were contending against a rule of the overseers of poor, which prevented children of parents who had no settlement in Cambridge from being sent to the Truant-School. This seems to deprive them of a power which is as much, if not more, required for that class of boys, as for those who are in possession of all the privileges the city confers.

“ These officers are now doing a work so positively in the interest of all citizens, in preventing the spread of contagious diseases, that it seems proper the people should know it through our report.

“ Physicians being obliged to report all cases of scarlet-fever, diphtheria, and other contagious diseases, to the Board of Health, their executive officer at once informs the truant-officer of the nature and location of the case, when he makes the necessary inquiries ; and immediately children from such homes are prevented from attending the public schools. This seeming security to the children of parents who expect the city to be the guardian of their offspring cannot be over-estimated, and would seem to offset the money spent for the services of truant-officers.

“ As no statistics of the work performed by these officers have been published since 1874, our committee favored doing so this year, particularly as there seems to be some inquiry in the direction of how the work has been performed by the reduced number of officers. The summary shows that during the past year the officers have received 7,822 complaints.

Number absent on account of sickness	1,432
absent on account of destitution	591
furnished with clothing	2
excused by parents	3,548
Total number absentees	6,367
tardy without excuse	602
entered school	42
truants, first offence	376

Total number truants, second offence	60
truants, third offence	68
habitual truants on probation	45
sentenced	7

“By this it would seem that they have had 1,266 more complaints to attend to than in 1874, and that the number of truants, first offence, were less by over one hundred; and, against 40 sentenced in 1874, only 7 the past year. This we are disposed to count in favor of the work being done by the truant-officers, and as parents more fully understand that their work is helpful to them, and not an unthinking power to drive their children to the public schools. We ask, from all parents who come in contact with these officers, the treatment and confidence they deserve.

“The manufactories have been visited, and a copy of the law left with all who desired it. They have found but few who are employed contrary to law.”

As regards

Rules and Regulations,

it is believed that the Board has been equally solicitous to avoid needless change, and ready to adopt any actual improvement, either in its own methods or in the organization and management of the schools. The Committee in charge of this business have performed no small amount of service; but as they have much oftener than not reported against the expediency of proposed alterations, and as their recommendations have with rare exceptions been adopted, their doings, having been for the most part not-doings, may be passed without further comment.

The Committee on

Schoolhouses and Hygiene

present a report which we give entire. It is the result of careful inspection and inquiry, and of mature thought. We trust that the importance of the subject may insure for the paper the attention it deserves.

“That the Board is not unmindful of the importance of this subject, is shown by the appointment of a Standing Committee on Schoolhouses and Hygiene, whose prescribed duty it is to examine frequently the various schoolhouses, and to report to the Board upon their sani-

tary condition, with such recommendations as they may deem expedient.

“In March, 1876, a special committee made a report upon the sanitary condition of the schoolhouses at that time, which was printed with the City Documents of 1877. The statements in that report have not produced the result which was hoped for, as, with a few exceptions, the condition of the schoolhouses remains unchanged; and reference is made to that report for full details.

“The most important improvement in any of the schoolhouses is in the Willard Primary School, which is now warmed by indirect steam radiation. This is of itself a great change for the better; but the system of ventilation remains unaltered, except that a greater supply of air is furnished by the new method of warming.

“Among the most fruitful causes of complaint are the location, construction, and condition of the outbuildings and water-closets. The ordinary privies in the yards with which most of our schoolhouses are provided are in many cases nuisances, both to the occupants of the schoolhouses and to the neighbors. This, together with the risk to the health of the children from exposure to the weather, has led to the building of sinks in the basements of several of the schoolhouses.

“The best example of this arrangement is found in the Webster Grammar School, where a shallow iron sink is kept clean by constant flushing when in use. In other buildings the sinks consist of deep brick troughs roughly cemented on the inside, which are flushed but twice a week. The objectionable features of these must be apparent to every one.

“School-children often suffer, especially in the primary schools, from the foul condition of the outbuildings. Want of care on the part of the janitors is, to some extent, the cause of this; but it is in the power of the primary-school teachers to work a reformation by the instruction of their scholars upon the importance of habits of neatness and decency, and by vigilant watchfulness to see that such offences do not pass unnoticed.

“The following are the rules of the School Committee, adopted May, 1877, concerning contagious diseases among the school-children:—

“1. No pupil shall be admitted into any school, without a certificate from a physician that he or she has been vaccinated.

“2. No teacher or scholar shall be allowed to attend school from any house in which small-pox, varioloid, scarlet-fever, or diphtheria exists.

“3. No teacher or scholar shall be permitted to return to school from any house in which small-pox, varioloid, scarlet-fever, or diphtheria has existed,

until the expiration of four weeks from the commencement of the last case in such family; such length of time being certified in writing to the teacher by a physician, or some responsible member of the family.

“4. No teacher or scholar shall be allowed to attend school, who is affected with measles or whooping-cough.

“5. Teachers shall have authority to exclude temporarily from school any scholar who may be affected with other diseases or eruptions of a doubtful character; but all such cases shall be at once reported to the sub-committee having charge of the school.

“In November, on account of the occurrence of several fatal cases of diphtheria among the scholars of the Wyman Primary School, the sub-committee, on the recommendation of the Committee on Schoolhouses and Hygiene, thought it best to close the school, thereby separating the children for a while, and also giving an opportunity for an examination of the building and its surroundings. Before the school was re-opened after the Thanksgiving recess, the schoolhouse and out-buildings were thoroughly cleansed, and some alterations made, tending to preserve the health of the scholars.”

The adjustment of

Salaries

by the Board of 1877 left few open questions for the consideration of the Committee of 1878. In such matters as have been submitted to them, they have uniformly taken the ground that they were authorized to recommend the payment merely of actual dues, and not of gratuities, however well merited; and in every instance they have been sustained by the vote of the full Board.

A subject which has been repeatedly urged upon public attention and interest is discussed at some length in the following report from the Committee on

Text-Books.

“It is a fact worth noting, that during the past ten years there has been but a single instance where a book in use either in the Primary or Grammar Schools has been displaced by another from a different author, and only six instances in the same time where a new and better edition of a book already in use has been substituted. This infrequency of change is due to the conviction of the Committee that any other course is not only unfair to parents and children, but tends to accord to text-books an undue importance. The text-book in the hands of a teacher or scholar is an instrument only; and while

care should be taken, that the instrument is good and adapted to its work, the main regard should be had to the skill of the person using it; and a good teacher will be known by his or her independence of the book used. As far as possible, especially in the earlier grades, teachers are encouraged to make their teaching a living force, direct from their minds to the minds of their pupils; and oral methods are preferred when used with intelligence, as fresher and more stimulating than a close use of text-books.

“Somewhat in the same spirit, an attempt has been made on a very limited scale to liberalize the study of reading in our schools. The Committee on Text-books was authorized to expend a small sum of money in procuring books to be used as supplementary to the ordinary reading exercises. This experiment has been successively proposed in reports of the Committee and Superintendent for several years: the trial now has been too slight and of too short duration to justify any extended inference, but the beginning which has been made is one of great interest. The Committee in charge of the matter placed three copies of each of the following books in each of the Grammar Schools in the city: Longfellow’s ‘*Evangeline*’; Whittier’s ‘*Snow-Bound*’; Hawthorne’s ‘*Legends of the Province House*’; Carlyle on the ‘*Choice of Books*’; Charles and Mary Lamb’s ‘*Tales from Shakspeare*.’ The character of these books helps to determine their use. The ordinary reading-books are required for that drill and exercise which serve to form and fix habits of distinct and intelligible reading aloud, but the very use of them for this purpose is likely to impair their value as anthologies; and besides, for one reason or another, the selections in these books are not always made with reference to presenting the best literature to the young. Again, children become so familiar with the text of the reading-books, that it is not always easy to tell how far they are reading intelligently, and how far they are unconsciously imitating a model which has been set them. These supplementary books, therefore, come into use in a number of ways. They furnish tests of the general training of the children; for, not being used as drill-books, it is possible for teacher and examiner to discover by the occasional reading aloud from them, after a few moments’ preparation only, how far the pupil is able to apply his habits of reading to a new book. This reading at sight is, besides, an agreeable and stimulating variation from the regular exercise. Again, they may serve as rewards and helps to the brighter and more industrious scholar, who, having finished his task in advance of the class, can be allowed to read to himself until the rest have reached the point of recitation or exami-

nation. Again, these books offer means for varying the exercises in writing. Just as the reading-book is important for drill, the copy-book with its one line to be repeated a score of times is also important for drill; and, as the special reading introduces freshness and new life into a hackneyed exercise, so the copying of passages in prose or poetry gives freedom to the pen and interest to the pupil. Exercises in recitation from these books can as properly find place as the learning of mottoes and proverbs: they furnish opportunities for dictation exercises. In a word, the quick-witted teacher can turn them to many uses, to give freedom and spontaneity to the school work. Above all, these books, as far as they are works of genuine literature, are brought directly before ingenuous young minds under the happiest influences. We cannot over-estimate the power of genius in literature to make itself durably felt in the responsive mind; and the work of our common schools will never be the highest so long as the power of reading is taught, and not the choice of reading. The great end of the public schools is not to give children merely the capacity to read the daily newspaper and to cast accounts: in the character of the good citizen an essential element is the love of what is honest and pure in his country's literature, and the training of the public schools ought to look to this end."

Mr. Foxcroft, who was chairman of the Committee on

Music,

resigned his place on the Board before the close of the year, and we have no specific report on this subject. The members of the Board have no doubt that the services of the teacher of music have been, as in previous years, assiduous, earnest, skilful, and successful. But while rendering him his full due of commendation, we must also express our high appreciation of the good work done in this department in most of our primary schools by the teachers themselves, without any professional aid. As proficiency in music is not among the required qualifications, it is remarkable that a very large proportion of our teachers are able not only to command the voices of the children for familiar airs, but to give elementary instruction in music. It is not easy to overrate the importance of singing in the discipline of a school, especially where the children are from ill-ordered homes and ill-governed families. It relieves weariness, promotes good feeling, brings teacher and pupil into more intimate and pleas-

ant relations, and often supersedes the necessity of rebuke and of punishment. Moreover, rhythm, harmony, and melody have, beyond a doubt, a humanizing, refining influence on feeling and character. The boy who enjoys his school songs is less rude and savage on the playground or in the street than he would otherwise be; and in little girls from the unprivileged classes it is very touching to see how much of native gentleness and sweetness, that would else be smothered for lack of expression, finds utterance in the plaintive hymns and ballads which form a part of the musical *repertorium* of almost every school.

We come, next in order, to

Accounts and Estimates.

The Committee in charge of this department have made their office no sinecure. Not a bill has been passed by the Board which has not had their careful scrutiny; and they have uniformly inquired into the details of accounts presented for their approval, when they were not sufficiently explained by their face and tenor. Their endeavor, and that of the entire Board, has been to bring the cost of our system to the lowest point consistent with its efficiency. The members of this Committee also constituted the committee for 1877; and the following table will show that they and their associates on this Board have contributed their full share toward the financial retrenchment which has become the imperative duty of all servants of the public.

SCHOOL EXPENSES.

1876.	1877.	1878.	Decrease from last year.	Decrease in two years.
\$159,318 00	\$146,905 00	\$133,491 20.	\$13,403 80	\$25,826 80

COST OF THE SCHOOLS TO THE CITY.

1876.	1877.	1878.	Decrease from last year.	Decrease in two years.
\$209,618 05	\$187,718 13	\$167,364 84	\$20,353 29	\$42,253 21

Under the auspices of this Committee, the always heavy yet inevitable charge in furnishing books for indigent children has been reduced from \$2,733.81 for the school-year 1876-77, to

\$2,391.71 for the school-year 1877-78. The Committee also have endeavored to ascertain all the cases in which pupils from other towns are members of our schools; and the alternative has in every case been offered, of withdrawing from school, or paying the tuition-fee. The fees thus collected amount to more than six hundred dollars.

The report of the Committee on

Examinations and Promotions

describes a method of examination tried for the first time in the spring of 1878, and, it is believed, with results that fully justify the expectations formed with regard to it.

“ One subject of vital importance to the systematic progress of the schools is a proper method of examinations.

“ With a board of school committee composed of gentlemen whose days are engrossed in business cares, and who are consequently debarred from that frequent attendance and prolonged investigation which unquestionably give the best knowledge of a teacher's work, it becomes a question of moment how to arrange the time actually given to the regular examinations so as to secure the most satisfactory results from the amount of time which can be given to this branch of their duty by members of the Board.

“ Under our present system, there are two regular examinations in the school year,—one, a *quasi* public examination immediately before the Christmas recess, of which public announcement is given, and which is more or less generally attended by the parents and other friends of the pupils. This examination is conducted more with a view of pleasing these friends, and exhibiting the proficiency of the pupils; it is, in other words, an examination of the scholars, and corresponds in a measure with the public exhibition of the High School: the other is an examination of the teachers and their work, towards the end of the school year, of a private nature, and the one on which the Board relies much more for an efficient test of the school work.

“ This year a plan has been adopted in regard to the latter examination, which is somewhat novel in its operation, at least as compared with the method of former years; which was, to divide the total number of rooms for examination as equally as possible among the members of the committee, with the result of giving each member so large a number for examination that nothing but the most superficial

investigation could be bestowed upon each teacher's work in the time which the examiners could spare from their business engagements. This plan, from lack of time, rendered these examinations, so important, in many cases a mere farce.

“The method adopted at present is as follows: Each member of the Board delivers to the sub-committee on examinations the names of three teachers in the schools of which he has the immediate charge, whose work he desires to pass under inspection; and this list of names so given is divided among the members of the Board, so that each member has three rooms only in the Grammar and Primary Schools for examination; and thus a thorough and painstaking examination of these rooms is gained each year. A careful written report of the results of this examination is made by the gentlemen examining; and this report is kept on file for future reference. Under this plan only a few teachers pass under a careful inspection each year; but the system of filing the reports insures the means of reference to future boards of the committee. This plan has worked so far with admirable success, and bids fair to accomplish the best results.”

We next present the report of the Committee on

Sewing.

“Sewing has now been taught in one of our grammar schools for a year. The classes which began in the fall of 1877 are continuing the work in a higher grade, while the new class which entered in the fall of 1878 has begun where its predecessor began, and is following the same course. By a simple expedient, it is possible for any one to examine the work done by each scholar at three separate periods, — at Christmas, 1877, April, 1878, and Christmas, 1878; so that the progress made in skill and neatness can be tested with great accuracy. It is very desirable that the experiment thus far carried on should now be carefully considered. Time enough has been given to it to demonstrate the expediency or the in expediency of continuing and extending it. The matter is one which concerns the families represented in our schools very nearly, and the Committee is desirous of receiving the fullest testimony as to the value of the experiment. So far as can be learned from unsolicited testimony, the introduction of the study so far has been approved; but, before making it a constituent part of the school system, it is important that wider consideration should be given to the subject.”

During the past year very few changes have taken place in our corps of teachers; and it could therefore hardly be other-

wise than that we should be able to report an advanced standard of efficiency and success. There is no profession in which the time-element is more important than in that of the teacher. There are a few born teachers; but they are very prone to fall under the law of premature decay to which precocity is always subject. Most persons who excel in this department reach their full growth only after years of faithful work; and we could point to some of the oldest now in the service of the city, who are still among the most progressive. Each school, also, has its distinguishing characteristics, its peculiar social surroundings and influences, its traditions and habitudes; and is therefore best served by a teacher who has become familiar with the situation, acquainted with its claims, expectations, and needs, and possessed — as our teachers generally are — of the entire respect and confidence of the parents. We have lost, in the resignation of Mr. Daniel B. Wheeler, principal of the Shepard Grammar School, a teacher whose ability, culture, mature experience, and practical wisdom, leave a place which cannot be easily, and will not be immediately, filled; but in Mr. Grover, his successor, we are confident that we have secured equal professional capacity and merit, which will need time alone to be equally recognized. Indeed, we are assured by high educational authorities in Arlington, that the transfer of Mr. Grover from Arlington to Cambridge is their irreparable loss: we trust that we shall find in it a corresponding gain.

In the discipline of our schools the last few years have brought about an entire revolution. For a considerable period after the abolition of bodily chastisement, there seemed an almost impending necessity of returning to it. Children who had identified school-government with brute-force were indisposed to yield to gentler methods; and it may be that the teachers retained too much of the spirit typified by the excluded ferule and rod. Pupils still expected to be forced or driven to their duty, and would not suffer themselves to be persuaded or drawn. Cases of temporary suspension from school thus became annoyingly frequent; and it was often only after unmerciful beating at home, that the child was sent back, sullen and savage, to school. At the present time the schools are governed, for the most part, by appeals to the children's better feelings; instances of contumacy or deliberate wrong-doing are

very rare; and a large proportion of the pupils feel an interest and an honest pride in the well-being and reputation of the school. Not a few of our teachers are spontaneously performing important services in other departments than their own. In the grateful affection for them awakened by their kindness in the hearts of children who elsewhere find little to love, there is a moral influence which will go far toward the checking of juvenile crime; and we feel sure that much is accomplished in the schoolroom toward lightening the labors of the police-court. Some of the teachers, also, have strained their own slender resources, and taxed the charity of their friends, in providing garments for destitute children. In fine, the great body of our teachers may now be characterized as not mere hirelings, however faithful, rendering a certain amount of task-work for its equivalent in money, but as earnest and devoted laborers for the substantial and enduring welfare, in mind and heart, condition and character, of the children under their charge. Moreover, we would desire to have it understood, especially by those in training, or who would put themselves in training, for the office of teacher, that this is the type of teachers that our schools need and crave, and that the time cannot be far distant when those who fall short of it will be thrown aside as unfit for their work.

In the administration of our schools it is impossible to over-estimate the services of our superintendent, who maintains the balance between the past and the future which befits his office, being at once wisely conservative and cautiously progressive, never forsaking a method or usage till he can replace it by a better, never taking a step in advance till he knows precisely where his footfall will be. As an intermediary between school and school, and between the several schools and the sub-committees in charge of them, he is constantly communicating important information, facilitating hopeful experiment, quickening the march of improvement, and hastening the settlement of all questions of management and discipline that demand authoritative interposition.

The superintendent has done much toward the furtherance of an aim referred to in previous reports, as well in that now offered by the Committee on Text-books, — the furnishing of reading matter independently of the (so-called) reading-books.

He has distributed among the schools large numbers of cards, some containing fresh materials, others with cuttings from books, periodicals, and newspapers, pasted on them. In some of the primary schools the teachers have carried into execution the same plan, cutting up story-books and numbers of "The Nursery," and constructing by means of them series of cards for the use of their classes. It is obvious to every visitor, that the reading of this miscellaneous matter is attended with much more interest and spirit than can be expected from the regular reading-lesson of the day, which, if it ever attracted attention, has in many cases become so familiar to the ear of the pupil, that his reputed reading of it is a mere act of memory. It is to be hoped, that, except for the lowest elementary training, reading-books of the kind prepared for school use will be gradually driven out of use, and their place supplied in part by the card-system, and, for the higher classes, in great part by the introduction of works of established literary reputation and merit. We have entered into no calculation in this matter, as we do not propose for the present any specific measure. But we believe that the sum actually paid every year for reading-books for poor children would, under judicious management, supply annually all the fresh reading-matter that would be needed in all the schools, and leave an appreciable surplus.

Among the features of our present system that merit special mention, is the training of the pupils of every grade in the use of words and the construction of sentences. This is commenced in the lower primary classes by oral exercises, and continued in the classes that can write by exercises on the slate or on paper: and at both extremities of the scale we have been agreeably surprised, — in the younger scholars, by their quickness of apprehension; and, in the older, by the accuracy, and not infrequently by the graceful turn, of the sentences written for our inspection. Every method which substitutes for the mere memorizing of words a knowledge of what they contain and mean is a movement in the right direction. We would gladly anticipate, as near at hand, the banishment of technical treatises on grammar from our (so-called) grammar schools, to be much more than replaced by oral instruction and class exercises in the meanings, relations, and uses of words.

The Committee cannot recommend an increased proportion of

teachers to pupils so long as the burden of taxation bears so severely upon our community. It is believed that we are the most heavily taxed people upon the earth; and in all probability the citizen of Cambridge pays to city, county, state, and nation, directly or through the custom-house, a full third part of his income. Economy in our expenditure for education is, therefore, our duty as administrators of a portion of the public revenue; but it should not be carried so far as not to furnish a seat for every scholar in some school not very far from his or her home. Yet some of our schools have been during the year crowded beyond their regular seating capacity, and, in certain neighborhoods where population is on the increase, are sure to be still more crowded during the coming year. We trust that the time has gone by when large investments in brick and mortar will be regarded as even an admissible part of our school system. But enlargement in some quarters is needed, and might be had at little cost. An additional room is greatly needed for the Riverside School; and, at the rate at which the child-population of that district is increasing, two new rooms will be soon required. The lot on which the building stands would admit of the addition. The alternative to such a construction, and, as we think, the more desirable method, would be to utilize an additional portion of the waste-room in the new City Building on Eliot Street, and in that direction to narrow the limits of the Riverside district.

The High School is greatly in need either of enlarged accommodations, or of some method by which its increase in numbers may be checked. All the present scholars can be seated, and room might be made for a few more in the building as it now is; but some of the classes are already too large, and with any essential increase of the school an additional teacher, if not two, would be, not desirable, but absolutely necessary: yet there is no room for another teacher, nor is there any room in which it would be possible for two teachers to conduct exercises at the same time. The experiment of colonizing a class in the Harvard Schoolhouse not only so utterly failed, but revealed so many reasons why it could not have been successful, that no committee would be likely to recommend its repetition. The plan for the reconstruction of the building, now in the possession of the city, would be admirable, if within reasonable

cost; but can be realized only at some future, we fear, remote, epoch of financial prosperity. The present building might be extended laterally at comparatively small expense. But it is well worth consideration, whether the wiser plan would not be so to raise the qualifications for admission to the High School as to limit its numbers. By this policy the efficiency of the school would be greatly enhanced; the valuable and costly services of its teachers would be no longer wasted on scholars incapable of profiting by them; and the standard of attainment would be raised in the Grammar, and through them in the Primary Schools.

With these suggestions, the Committee yield up their charge for the year, earnestly commending the schools of Cambridge to the watchful care and wise munificence of the next year's city government, and to the cordial and helpful interest of our whole community.

All which is respectfully submitted,

SAMUEL L. MONTAGUE, *Chairman ex officio.*

ANDREW P. PEABODY,
HORACE E. SCUDDER,
JOHN WILSON,
EDWARD R. COGSWELL,
JAMES H. HALL,
SUMNER ALBEE,
JOHN O'BRIEN,
GEORGE R. BRINE,
GEORGE A. COBURN,
ASA P. MORSE,
WILLIAM A. MUNROE,
WILLIAM H. ORCUTT,
EDMUND H. STEVENS,
WM. FOX RICHARDSON,

*School
Committee.*

TABULAR VIEW
OF
THE PUBLIC SCHOOLS OF CAMBRIDGE,
JANUARY 1, 1879.

NAME OF SCHOOL.	TEACHERS.	Salary.	No. of Scholars, Jan. 1, 1879.
High School . . .	Lyman R. Williston . . .	\$3,000	477
	William F. Bradbury . . .	2,600	
	John Orne, Jr. . . .	1,800	
	Theodore P. Adams . . .	1,800	
	Solon F. Whitney . . .	1,800	
	Edward E. Bradbury . . .	850	
	Mary F. Peirce . . .	950	
	Emma A. Scudder . . .	850	
	Hannah Gleason . . .	850	
	Emma F. Munroe . . .	850	
	Mary C. C. Goddard . . .	850	
	Julia A. Keeler . . .	850	
	Benjamin W. Roberts . . .	2,000	
	Lizzie B. Winnett . . .	725	
Allston Grammar . .	Emily R. Pitkin . . .	650	500
	Lucia E. Whiting . . .	650	
	Hannah L. Hill . . .	650	
	Ida G. Smith . . .	650	
	Nettie Sargent . . .	650	
	Caroline Close . . .	650	
	Josephine H. Davis . . .	575	
	S. Annis Bates . . .	650	
	M. Elizabeth Dickson . . .	650	
	Emma A. Eaton . . .	500	
	Aaron B. Magoun . . .	2,000	
	Ada H. Wellington . . .	725	
	Margaret B. Wellington . . .	650	
	Mary E. Carpenter . . .	650	
Harvard Grammar . .	Lydia S. King . . .	650	547
	Susan F. Athearn . . .	650	
	Margaret R. Hodgkins . . .	650	
	Annie M. Leland . . .	650	
	Susan E. Merrill . . .	650	
	Emily F. Damon . . .	650	
	Sarah E. Golden . . .	650	
	Ellen Merrick . . .	650	
	Mary F. Emerson . . .	650	
	James S. Barrell . . .	2,000	
	Sarah M. Burnham . . .	725	
	Anna B. Josselyn . . .	650	
	Addie Stone . . .	650	
	Eliza M. Hussey . . .	650	
Putnam Grammar . .	Augusta G. Mirick . . .	650	408
	Annie Knapp . . .	650	
	Eliza S. Getchell . . .	650	
	Maria E. Spare . . .	650	
	C. E. Doran . . .	575	

TABULAR VIEW OF THE PUBLIC SCHOOLS — *Continued.*

NAME OF SCHOOL.	TEACHERS.	Salary.	No. of Scholars, Jan. 1, 1879.
Shepard Grammar .	Edward O. Grover . . .	\$2,000	435
	Fannie A. Cooke . . .	725	
	Julia H. Osgood . . .	650	
	Sarah A. Rand . . .	650	
	Harriet L. Hayward . . .	650	
	Emily F. Fessenden . . .	650	
	Cora M. Wheeler . . .	650	
	Ruth E. Lander . . .	650	
	Dana A. Evelyth . . .	650	
	Anna Osgood . . .	650	
	Nellie A. Hutchins . . .	650	
	Ruel H. Fletcher . . .	2,000	
	Ellen M. Parker . . .	725	
	Martha A. Martin . . .	650	
Thorndike “ .	Mary E. Nason . . .	650	509
	Isabella B. Tenney . . .	650	
	Ella W. Clark . . .	650	
	Grace W. Fletcher . . .	650	
	Emma A. Hopkins . . .	650	
	Abbie A. K. Howard . . .	650	
	Lydia A. Whitcher . . .	650	
	Abby S. Taylor . . .	650	
	Elizabeth P. Regal . . .	500	
	Daniel Mansfield . . .	2,000	
	Hattie T. Nealley . . .	725	
	Lucy A. Downing . . .	650	
	Adeline M. Ireson . . .	650	
	Abby M. Webb . . .	650	
Washington “ .	Adelaide A. Keeler . . .	650	555
	Adelaide A. Keith . . .	650	
	Adelia Dunham . . .	650	
	Emma P. Eaton . . .	650	
	Eliza A. Hale . . .	650	
	Caroline H. Hazeltine . . .	575	
	Carrie A. Cooke . . .	650	
	Mary A. Wheeler . . .	500	
	John D. Billings . . .	2,000	
	Gertrude E. Hale . . .	725	
	Louise C. D. Harlow . . .	650	
	Esther F. Hannum . . .	650	
	May E. Towle . . .	650	
	Charlotte M. Chase . . .	650	
Webster “ .	Emily H. Phinney . . .	650	614
	Anna S. Lamson . . .	650	
	Clara E. Matchett . . .	650	
	Carrie M. Kingman . . .	650	
	Alice Gray . . .	650	
	Marion H. Burnham . . .	650	
	Carrie W. Osgood . . .	575	
	Lizzie C. Capen . . .	650	
	Alice K. Hanks . . .	500	
	Mary Agnes Lewis . . .	600	
	Sarah E. Stewart . . .	600	
	Augusta L. Balch . . .	600	
	S. N. Chamberlain . . .	600	
	Evelyn A. Sawyer . . .	600	
Brattle “ .	Lucy C. Wyeth . . .	600	44
Bridge “ .	Elizabeth E. Dallinger . . .	600	72
	Emily C. Dallinger . . .	600	

TABULAR VIEW OF THE PUBLIC SCHOOLS—*Continued.*

NAME OF SCHOOL.	TEACHERS.	Salary.	No. of Scholars, Jan. 1, 1879.
Dana Primary	Maria F. Williams . . .	\$600	73
	Abby A. Lewis . . .	600	
Dunster “	Susan E. Wyeth . . .	600	56
	Sarah B. Waitt . . .	600	
Felton “	Georgiana L. Backus . . .	600	102
	Frances Fabyan . . .	550	
	Estelle J. French . . .	600	
Gannett “	Sarah J. Davis . . .	600	193
	Anna M. Jones . . .	600	
	Charlotte E. Mitchell . . .	600	
	Frances E. Pendexter . . .	600	
	Addie M. Bettinson . . .	600	
	Agnes M. Cox . . .	600	
Gore “	Mary A. Bourne . . .	600	395
	Nellie L. Pike . . .	600	
	Sarah D. Graham . . .	550	
	Mary A. Shepard . . .	550	
	Mary E. Mulloney . . .	500	
Harvard “	Helen M. Ward . . .	600	86
	Ellen A. Cheney . . .	600	
	Marianne M. Webb . . .	600	
Holmes “	Eunice W. Field . . .	600	189
	Mary L. Bullard . . .	600	
	Louisa G. Matchett . . .	600	
Mason “	M. Lizzie Evans . . .	600	89
	Alma A. Smith . . .	600	
	Luvia Goodnow . . .	600	
	Martha H. Butler . . .	600	
	Kate F. Wellington . . .	600	
Otis “	Carrie H. Smith . . .	600	389
	Mary E. Smallidge . . .	600	
	Fannie Allen . . .	600	
	Ellen C. Walsh . . .	550	
	Josephine M. Doherty . . .	550	
Putnam “	Nellie F. Ball . . .	600	57
Quincy “	Charlotte E. Jewell . . .	600	87
	Talulah G. Abercrombie . . .	600	
Reed “	Lucy T. Sawyer . . .	600	94
	Hattie N. Keyes . . .	600	
Riverside “	Elizabeth A. Tower . . .	600	216
	M. Louise Akerman . . .	600	
	Emma M. Newton . . .	550	
	Florence M. Hayward . . .	600	
Sargent “	Frances J. Harrod . . .	600	147
	Mary A. Brown . . .	600	
	Myra I. Ellis . . .	500	
	Mary E. Sawyer . . .	600	
	Mary Ann Tarbell . . .	600	
	Kate M. Lowell . . .	600	
Willard “	Amelia Wright . . .	600	447
	Evelina Brooks . . .	600	
	Laura Wright . . .	600	
	Grace R. Woodward . . .	600	
	Louise W. Harris . . .	600	
	Hattie A. Hamlin . . .	500	
Wyman “	Fannie E. M. Dennis . . .	600	182
	Charlotte A. Ewell . . .	600	
	Letitia M. Dennis . . .	600	
	Martha C. Dickman . . .	600	

TABULAR VIEW OF THE PUBLIC SCHOOLS—*Concluded.*

NAME OF SCHOOL.	TEACHERS.	Salary.	No. of Scholars, Jan. 1, 1879.
Training School	Anna C. Sullivan . . .	900	205*
	Ella C. Whitney . . .	650	
	M. Etta Arkerson . . .	650	
	Emma B. Alley . . .	650	
	Jeanie Prescott . . .	650	
City “	Harriet A. Butler . . .	650	35

TEACHER OF SINGING. — Nathan Lincoln . . . \$1,800

TEACHER OF SEWING. — C. L. W. Bigelow . . . 275

SUPERINTENDENT OF SCHOOLS. — Francis Cogswell . . . 2,700

SUMMARY.

Number of Pupils in High School	477
“ “ “ Grammar Schools	3,598
“ “ “ Primary Schools	3,348
	<u>7,423</u>

COST OF INSTRUCTION.

High School	\$17,050	for each pupil . . .	\$35 74
Grammar Schools	64,975	“ “ “ . . .	18 05
Primary Schools	43,750	“ “ “ . . .	13 30
Music	1,800		
Sewing	275		
Salary of Superintendent	2,700		
	<u>\$130,550</u>	for each pupil . . .	\$17 58

Number of Pupils belonging to Public Schools, Jan. 1, 1879 . . .	7,423
“ “ “ “ “ Jan. 1, 1878 . . .	7,473
	<u>50</u>
Decrease	

Average annual increase of Pupils from 1860 to 1874, inclusive . . .	246
Decrease of Pupils, 1875	268
Increase of Pupils, 1876	6
Decrease of Pupils, 1877	81
“ “ 1878	50

Number of Schools	29
“ “ Teachers	173

* Including the Training Class (13), a Grammar Class (30), and Primary Classes (162).

REPORT

OF

THE SUPERINTENDENT OF SCHOOLS.

TO THE SCHOOL COMMITTEE OF CAMBRIDGE:—

Gentlemen,—I respectfully submit the following as my report for the year ending Dec. 31, 1878, it being my Fourth Annual Report.

As the Annual Report of the School Committee this year is to embody the reports of the Standing Committees of the Board, I will not refer to the departments under their special charge, unless there are particular points to which I desire to call your attention.

SUMMARY OF STATISTICS

For the School Year ending Dec. 31, 1878.

I.—Population.

Population of Cambridge by State census for 1875	47,838
The number of children in the city between five and fifteen years of age, May 1, 1878	8,422

II.—Schools.

1 High School.	1 Training School.
7 Grammar Schools.	6 Evening Schools.
20 Primary Schools.	2 Evening Drawing Schools.
Whole number of Day and Evening Schools	37

III.—Schoolhouses.

For the High School	1
For the Grammar Schools	7
For the Primary Schools, including Training School	18

IV. — *Teachers.*

Number of teachers in High School	12
Male teachers, 6 ; female teachers, 6.	
Number of teachers in Grammar Schools	87
Male teachers, 7 ; female teachers, 80.	
Number of teachers in Primary Schools, including principal of Training School	72
Number of teachers in Evening Schools	37
Male teachers, 16 ; female teachers, 21.	
Number of teachers in Evening Drawing Schools	4
Whole number of teachers in Day Schools, including teacher of music, and teacher of sewing	173

V. — *Pupils.*

Number of different pupils registered in the Day Schools dur- ing the year	8,554
Average number of pupils belonging to the Day Schools during the year	7,028
Average daily attendance of pupils in all the Day Schools . .	6,457
Per cent of attendance in all the Day Schools	91.8
Average number of pupils belonging to the High School	456
Average daily attendance in High School	432
Per cent of attendance in High School	94.9
Average number of pupils belonging to Grammar Schools	3,282
Average daily attendance of pupils in Grammar Schools	3,049
Per cent of attendance in Grammar Schools	92.9
Average number of pupils belonging to Primary Schools	3,280
Average daily attendance in Primary Schools	2,966
Per cent of attendance in Primary Schools	90.4
Number of different pupils belonging to Evening Schools	729
Average attendance in Evening Schools	294
Number of different pupils belonging to Evening Drawing Schools	133
Average attendance in Evening Drawing Schools	57
Number of pupils between five and fifteen years of age in actual attendance upon the Day Schools, May, 1878	6,672
Number of pupils over fifteen years of age in actual attend- ance upon the Day Schools, May, 1878	607
Number of pupils under six years of age in actual attendance upon the Day Schools, May, 1878	411
Number of pupils graduated from Primary Schools, July, 1878	788

Number of pupils graduated from Grammar Schools, July, 1878	266
Number of pupils graduated from High School, July, 1878 .	82
Number of pupils from High School admitted to college .	18
Number of pupils graduated from Training School, July, 1878	9
Number of pupils admitted to Grammar Schools, September, 1878	779
Number of pupils admitted to High School, September, 1878,	189
Number of pupils admitted to Training School, September, 1878	15
Whole number of Private Schools	18
Number of pupils in Private Schools	1,381

Table showing the Number in each Course in the High School, December, 1878.

YEAR.	Classical Course.	Complete English.	Shorter English.	Number of Divisions.
Fifth	20	..	..	1
Fourth	15	55	..	3
Third	22	43	1	3
Second	114		16	5
First	150		41	7

Table showing the Number in each Class in the High School, December, 1878.

YEAR.	Boys.	Girls.	Total.	Per cent.
Fifth	14	6	20	.041
Fourth	21	49	70	.146
Third	24	42	66	.138
Second	59	71	130	.272
First	84	107	191	.400
Total	202	275	477	

Table showing the Number in each Class in the Grammar Schools, December, 1878.

[The numbers in this and the following table include only those scholars who were present at some session during the first two weeks of December; while those in the "Tabular View" include all who belonged to the schools, though absent on account of sickness or for other cause.]

CLASS.	Boys.	Girls.	Total.	Per cent.
First . . .	138	150	288	.08
Second . . .	207	223	430	.119
Third . . .	316	300	616	.171
Fourth . . .	343	303	646	.179
Fifth . . .	352	374	726	.201
Sixth . . .	446	444	890	.247
Total . . .	1,802	1,794	3,596	

Table showing the Number in each Class in the Primary Schools, December, 1878.

CLASS.	Boys.	Girls.	Total.	Per cent.
First . . .	535	519	1,054	.336
Second . . .	495	475	970	.309
Third . . .	584	528	1,112	.354
Total . . .	1,614	1,522	3,136	

The statutes require that "the School Committee shall annually, in the month of May, ascertain, or cause to be ascertained, the names and ages of all persons belonging to their respective towns and cities on the first day of May, between the ages of five and fifteen years, and make a record thereof."

The following is a summary of the returns for 1878 made by the officers appointed to ascertain the required facts:—

Number of children in the city between five and fifteen years
of age 8,422

Number in Public Schools between five and fifteen years of age	6,587
Number in Private Schools between five and fifteen years of age	1,042
Number not attending school between five and fifteen years of age	793
Number not attending school between five and eight years of age	485
Number not attending school between eight and thirteen years of age	153
Number not attending school between thirteen and fifteen years of age	155

VI.—*Finances.*

Cost of instruction in Day Schools	\$133,491 20
Text-books and stationery for Day Schools	3,135 41
Incidental expenses for Day Schools	1,653 08
Amount of salaries of truant-officers	3,000 00
Compensation of Secretary of School Committee	300 00
Cost of instruction in Evening Schools	3,234 50
Cost of instruction in Evening Drawing Schools	700 00
Incidental expenses for Evening Schools and for Evening Drawing Schools	299 28
Care and repairs of schoolhouses	20,558 80
Amount expended for alterations of schoolhouses	2,566 00
Total expenditures for all school purposes	\$168,938 27
Deducting receipts from the Hopkins Fund (\$778.43) and for tuition of non-resident pupils (\$795), actual cost of the schools to the city	\$167,364 84
Assessed value of real and personal estate, May, 1878, ...	49,610,140 00
Ratio of expenses for school purposes to the valuation of 1878	.0033

The above statistics, so far as they relate to the number of schools, schoolhouses, teachers, and the attendance of pupils, are almost identical with those for 1877. The per cent of attendance has not varied one-tenth of one per cent for three years, and the change in the average daily attendance has not exceeded one hundred pupils. In the expenses of the schools there has been a reduction of more than twenty thousand dol-

lars (\$20,355.29) from the expenditures for 1877, and about forty-two thousand (\$42,253.21) from those for 1876. The reduction in the cost of the schools has kept pace with the shrinkage in the valuation of the city.

Reading.

Intelligent reading is intimately connected with progress in every branch of instruction: it is therefore of the highest importance that the methods by which it can best be secured should be clearly understood and followed. My own views have already been given in previous reports. I desire to emphasize what I have there said, by placing before you the views of other superintendents and educators upon two points: the best methods of teaching *first lessons* in reading, and the necessity of *supplementary reading* to secure the most valuable results.

The following extracts are from official reports:—

“The first principle of teaching may be stated as follows: All topics should be taught objectively, by bringing into the presence of the mind the actual objects and subjects of study, or by bringing before the mind as complete illustrations as possible of them. By the term ‘objects’ are meant physical things, or those things which are external. By the term ‘subjects’ are meant mental things, or those which are internal, such as thoughts, and mental states, and the sciences. An object is in the presence of the mind when it holds such a relation that the mind perceives the object. A subject is presented by awakening in the mind those thoughts or mental states, or that knowledge, which constitutes the subject of which the teacher desires the pupil to become conscious. All teaching is objective that succeeds in bringing the object or subject of thought before the mind for its consideration. The more teachers study their art, and understand it, the more inclined they are to teach by bringing into the presence of their pupils the objects to be studied. The principle here illustrated is violated whenever the teacher employs words as substitutes for that which the words describe.

“Another principle of teaching is, objects and subjects should be taught first as wholes. The principle is violated when the alphabet is taught as a step towards reading. . . . Parts can never be parts to the learner before he knows the whole of which they are parts.” —
HON. JOHN W. DICKINSON, *Secretary of the Board of Education.*

“The good primary teacher begins her instructions in language with *words*, not *letters*; because the child begins its use of language with words, and has acquired quite a vocabulary of them before the notion of such a thing as a letter has entered its head. And the eye will just as readily take in a word as a whole, if of one syllable only, as it will a single letter. The unit or starting-point of language is indisputably the word, and not the letter, especially as the names of letters express only a portion of their powers or sounds. . . .

“A beginning is made with object-words; that is, such as symbolize things which can be actually exhibited, or else represented in pictures. And thus the order of nature is expressly followed: first the *thing*, then the *conception*, then the abstract symbol or *word*. . . .

“When the stage of progress is attained at which it is desirable to analyze words into their elements, the actual elements are sought for. These are the *powers* or *sounds* of the letters, not their *names*; for many of the letters have several powers, and to spell by letter is no sure guide to correct pronunciation. Spelling, therefore, in the beginning, is phonic. Every word is spelled by the sounds which compose it; and each sound is required to be clearly and distinctly enunciated. The different powers of those letters which have more than one power are indicated by definite marks; and thus an ability is soon acquired to pronounce with readiness unfamiliar words, while defects of enunciation are rapidly corrected. It is surprising what an avenue this process is to clearness and distinctness of speech.

“All the while the names of the letters remain untaught; and there is a time — somewhere along the latter part of the first year of schooling — when they may not be familiar to all the scholars, although they are able to read easily the simple sentences in the beginning of the primer. But by the time that they are wanted for use they are almost invariably known, without the least attempt to teach them. The teacher, of course, is making frequent reference to them, when drawing distinctions between names and sounds; and in this and other incidental ways the knowledge comes, without conscious effort or even thought.

“After the ability to read connected sentences has been acquired, instead of chaining the scholars down to the text-books, and limiting their intelligence to that narrow field, the direction is to occupy every moment not otherwise employed with interesting reading matter. A rich vocabulary can be collected only by intercourse with books; and TO READ MUCH, not merely in task-work to attain the power of good expression, but for the simple sake of reading, — the sake of

encountering known words in new connections, and forming acquaintance with new words, — would seem to be one of the most important applications of school time. THIS IS ONE OF THE FOUNDATION PRINCIPLES OF OUR SCHOOL WORK; and, to give it sufficient opportunities, reading-matter, in addition to the text-books, is freely furnished out of the Howland¹ Income Fund.” — REV. H. F. HARRINGTON, *Superintendent of Schools, New Bedford*.

“The child enters school with a fair knowledge of the use of words which have been acquired in the most natural way, — by observation. Yet these words are known only by the organs of speech and by the sense of hearing. The knowledge of these words constitutes *the known* to the child, and indicates to the thoughtful teacher both the starting-point in teaching reading, and also the matter to be taught first. Learning to read properly commences with learning to know words by the sense of sight; and those words should be learned by sight first which are already known by hearing and by speech. Single words which are names of familiar objects, or of their qualities, uses, and actions, are most appropriate for the first lesson. Each word should be learned by sight first as a whole, just as it had been learned as a whole by hearing. The elements of form and sound should be taught subsequently.

“In learning to talk, the child uses and understands the words as representations of objects, qualities, or actions. Nouns, adjectives, and verbs are learned first; the words which serve as joints and hinges in language are acquired later, not as single words, but their use in sentences. In like manner this class of words should be learned in reading.

“Having become familiar with several single words, as above described, the pupils are prepared to take their first lessons in *discovering thoughts* represented by two or more words; as, *new hat, new book, old cap, good girl, dog barks, see dog run, see cat play, hear cat purr*, etc. Subsequently such words as *a, the, and, at, for, by, to, on, in, with, this, &c.*, may be joined with similar groups of words, so as to form phrases and sentences. Gradually complete sentences may be introduced to the young learners in reading, and they may be required to find the thoughts expressed in each. These exercises are important aids in teaching children *to read the thoughts represented by the sentences*, instead of reading the separate words as mere

¹ The Howland Fund amounts to \$100,000, the income of half of which goes to the Free Public Library, and that of the other half to the public schools, \$3,000 per annum to each.

The school money, by the will of the testatrix, is limited to such desirable supplies as *the city is not obliged to furnish through taxation*.

words. The giving of too much attention to the reading of mere words, and too little importance to reading the phrases and sentences of the lesson, are the most prominent causes of that lack of intelligence which characterizes far too many of the reading exercises heard in school.

“During the early steps in teaching reading, the best tools within the reach of every teacher are the blackboard, chalk, and pointer. Charts and books are useful at a later stage; and when these are first employed they should be used in connection with, and in alternation with, the blackboard. There is but little danger of using the blackboard too much during the first three or four months of learning to read, provided that new and progressive lessons are introduced each day, and previous ones carefully re-read. Indeed, before books are put into the hands of children in a class, they may be taught to read from a blackboard several of the lessons contained in the book. And the first instruction given by the use of the reading-book may have for its chief object to teach the pupils to find the words and sentences which they had previously learned from the blackboard. By such means they can be taught, from the first, to find readily the thoughts expressed in the lesson, and to read in an intelligent manner, instead of spelling their way slowly through the individual words, and gaining little or no idea of what they mean as grouped in the sentences.

“Good methods of teaching reading proceed in the following order: *First*, words are taught as signs of simple thoughts; *second*, the discovery of thoughts represented in two or more words, in phrases, and in sentences; *third*, the reading of the thoughts thus discovered, in a proper manner. By such methods children acquire habits of giving chief attention to the thoughts, and thereby gain ability to read new lessons intelligently. In teaching single words the prominent inquiries should be, What does this word represent, or mean? What is the word? In teaching phrases and sentences the inquiries may be, What do these words say? What thought do they represent? How should the thought be spoken? These or similar inquiries should be made of the pupils throughout each new lesson, until they have acquired the ability to examine new lessons in like manner, and readily discover the thoughts.

“Reading is employed, during the years subsequent to those spent in school, chiefly as a means of silently gaining the thoughts which others have written. Elocutionary reading necessarily occupies a very small part of the time spent in reading. Even this must also depend chiefly upon a ready discovery of the thoughts represented by

the sentences read. Therefore, from whatever standpoint reading is reviewed, it is evident that chief attention should be given to training the pupils in such habits as will give them the greatest proficiency in discovering and properly speaking the thoughts of the sentences." — MR. N. A. CALKINS, *Assistant Superintendent of Schools, New York City*.

"It is well known, at least to teachers, that there are various theories of teaching reading to very young children. The old method, still adhered to by many, is to begin with the *name* of the letters, and then jump to the *power* of letters in combination; and we sometimes think it very strange that the child can't see that 'h-a-t' spells 'hat,' when, in fact, he has no reason in the world to think it spells any thing, — or, at most, only 'aitchaty.' But bad as this system, or lack of system, is, children do learn to read, though not by any *direct* instruction. This is the child's first experience in school of 'obtaining knowledge under difficulties,' and furnishes an excellent illustration of his aptness to learn, and his ability to overcome partially the hindrances of poor teaching.

"Another method is that of beginning with the powers, or elementary sounds, before the names of the letters are given, and combining them, — thus forming words.

"Still a third method is that of beginning with the *word* as the unit of significance, and analyzing the spoken word into its elementary sounds, and the written word into letters. While I am aware that many excellent teachers advocate the second method, it seems to me that the third is more in accordance with the manner of learning to talk, and appeals more immediately to the intellect.

"It must, I think, be easier and more interesting to take a word, the sign of an idea, and resolve it into its parts, than to work with the utterly unmeaning elementary sounds until we have constructed the significant sign. It seems to me that the machinist finds it a more interesting as well as easier process, having seen the machine as a whole, to take it apart, and examine it, than he would to construct the several parts, and put them together without any idea what it is to be till it is finished. But, whether teachers begin with one or the other of the two latter methods, their work soon becomes essentially the same. They both differ from the first in being intelligent methods, which the first is not. But this is only the first step in learning to read; and it has seemed to me that the next step — that of putting words together in phrases and sentences — is quite as important, and perhaps more so. The monotonous habits acquired

by reading sentences before the pupil is perfectly familiar with the words and phrases are often carried through life.

“There are certain words—as the articles and the auxiliary verbs for instance—that stand in the relation of unaccented syllables to the words to which they belong; and I think the sentence should not be read till the pupil can pronounce these combinations as one word. Thus, I would have the pupil able to pronounce rapidly the phrases, ‘can spin,’ ‘the boy,’ ‘the top,’ before he is required to read the sentence, ‘The boy can spin the top.’ It then conveys to his mind some meaning, instead of being a mere string of words, as they are, if with some difficulty, and silent spelling of the words, he reads, ‘The—boy—can—spin—the—top.’”
—PROF. B. F. TWEED, *Supervisor of Schools, Boston.*

“The A B C method has been entirely discarded, and a rational method adopted. This involved much study and painstaking on the part of the primary teachers; yet, imperfect as their knowledge of the art has been, the results more than equal the claims made in the report of last year. Proofs are at hand that fully two-thirds of the time in the eight-years’ course will be saved in teaching reading, with far better results. Five months are spent in teaching words and sentences from the blackboard; and during the remainder of the year four, five, and sometimes six, first readers are completed. A lesson is re-read but once generally. I have purchased, with your consent, ten sets of different first readers, at a cost of less than fifty dollars. Instead of using one little book for one and two years, fresh, interesting reading-matter is constantly supplied. Instead of learning one reader by heart, all first-reader reading is thoroughly mastered, the actual work of teaching primary reading is finished, and all future reading will be a pleasure, thus happily avoiding the drudgery of stumbling through reader after reader. From this point the line of progress is the acquisition and use of new words.”

[The following is from a subsequent report.]

“The children have from the beginning to the end of their school course plenty of fresh, interesting, and profitable reading, embracing the best periodicals, reading-books, stories, histories, geographies, and scientific works.

“Of course the real benefit to the pupils of so much reading depends largely upon the skill, insight, and mental activity of the teacher. Opposed to the old plan of constant repetition is that of

too superficial reading under the new. . . . One result can be stated with confidence, — that reading in school is a source of continual pleasure. I find, to my surprise, that most classes prefer histories and readable geographies to the choicest stories in the ‘St. Nicholas.’ ” — COL. FRANCIS W. PARKER, *Superintendent of Schools, Quincy.*

“ We begin by writing on the blackboard the names of familiar objects. The child’s attention is first called to the object, then to the word that names it, and he is asked to sound and call it. This word is then combined with others, and a sentence formed. . . . After weeks of this drill the First Reader is given him ; and by conversation and explanation he is made familiar with the subject-matter of each lesson, and reads it at sight. He is enabled to do this by having all the difficult words of the lesson written on the blackboard and explained to him, and by being then required to copy and put them into sentences. As he reads a lesson, generally, but once, he always has something fresh and attractive which excites his interest and curiosity. After several First Readers have been completed, the child is ready for the Second, or perhaps ‘The Nursery.’ The same method is pursued with the Second as with the First. The child is taught to look for the thought, as that must be mastered before the reading can be made expressive. . . . I have thus far spoken of what is being done to teach our pupils how to read. I am convinced that it is the duty of educators to go farther, and, as far as possible, *direct* the reading of the children and youth in our schools.” — MR. HARRISON HUME, *Superintendent of Schools, Lawrence.*

“ The *spoken* word is familiar to the child ; and according to the principle, ‘from the near to the remote, from the known to the unknown,’ we ought to step from that to its representative, the *written* word. As soon as the written word is learned as a *form*, the constituent elements are brought to notice, by slow and distinct pronunciation, until they are severally recognized ; then their representatives, the separate letters, are introduced ; and the sounds of the several letters so learned are, in turn, used to build up new words and sentences. Thus the learning to read is begun. The applications of this method are various. Some teachers prefer to teach fifteen or twenty words, and even more, according to the word-method, before the sounds of the letters are introduced. Some, by slow and distinct pronunciation of the words as they are learned, lead the children to separate them into the sounds of which they are

composed; teaching them, in fact, to spell by sound the few words learned by the word-method, before any letters are brought to their attention. This is a good preparation for the introduction of letters, or the signs which indicate the sounds.

“One variation of the method, which was introduced and carried out with eminent success by a young and spirited teacher, deserves special mention. The script character was exclusively employed for the first seven or eight months; the pupils learning the written, as they had already learned the spoken language, by use. The transition to the ordinary type was found to be very easy; and in the two or three remaining months of the year, the children learned to read ‘print’ with as much facility as children who had been taught that alone from the beginning. . . .

“The habit which prevails in some places of assigning three or four paragraphs to a school of forty or fifty pupils, all of whom read and re-read it, with the object in view that they all may learn to read it thoroughly well (that is, in the style exemplified by the teacher), will doubtless produce the result expected, if there be only an ordinary degree of ability displayed on her part. But the matter of our School Readers is so carefully graded, that the vocabulary and variety of composition to be found in the first three or four books of the series are so extremely limited that they are insufficient to fit the pupils to read newspapers, histories, books of science, and general literature with such a degree of readiness as to make it a pleasurable exercise; and the result is that thousands cease to read, except on compulsion, soon after they leave the schools. . . .

“What is needed is a more liberal supply of reading-material level to the mental capacity of children, yet of a higher style and larger vocabulary than is to be found in our School Readers.” —
MR. ANDREW J. RICKOFF, *Superintendent of Instruction, Cleveland.*

“The growing problem is not how the pupils shall become competent to perform the prescribed work, but by what means and from what sources they shall be supplied with extra reading-matter which their advancement requires. The old dictum, that a child should read his book over and over, finds but few to do it honor. It is granted, I may say by all, that, in order to teach a child to read well, he should read broadly upon his plane of comprehension. Because he has acquired the words and understands the thought of his School Reader, it by no means follows that he has sounded the depths of all human knowledge which can be conveyed even by words of two syllables. . . . No one would attempt to teach a child to read music

by continually presenting to him the same score ; nor would any one dream of developing the power to draw by working continually upon one object. Still less should we expect to teach a child to read by confining his efforts to a single book or a single style of composition. The lessons of the reading-book and the matter which the child essays to read at home are widely different. The one, consisting of a carefully graded series, is read under the teacher's eye, with all the difficulties removed or at least greatly lessened : the other comes as it happens, is filled with new words, and teems with new ideas. It is this which causes the wide discrepancy so often seen between the judgment of the teacher and the parent. I am convinced that the teacher has absolutely no means of accurately determining the child's ability and progress until she can give him a lesson entirely new, and observe with what success he masters its difficulties and expresses its thought.

“ The parent is continually doing this : the teacher, when confined to text-books, never ; and the result is a difference of opinion which makes each incomprehensible to the other. The fact that the child reads his School Reader can never be safely taken in proof that he can read other books as well : it not unfrequently happens that that is the only book he can read. . . . The child should have continual practice in reading matter which he never saw before.” — MISS HARRIET L. KEELER, *Assistant Superintendent of Instruction, Cleveland*.

“ Reading should be taught in such a manner that the pupils can read fluently from books or papers. It is not the province of the schools to enable scholars to read a few pieces selected from the reader, — pieces upon which they have been drilled until they have committed them to memory. Pupils should read other pieces than those in the prescribed text-books, and should be accustomed to read selections they have not previously studied, so as to acquire a familiarity with the language.” — MR. JOSEPH G. EDGERLY, *Superintendent of Schools, Fitchburg*.

“ We not only want more reading-books, but different ones ; not readers, not fragments of writings, but writings, however brief, — a story or a history, a book of travels or a poem, — associated as vividly as possible with the author who wrote them, not a mere book-maker who has patched together pieces of them. With such reading-books, intelligently used, the inability of our children to read at sight and with expression would become less common and less pain-

ful. As for grammar, it would almost develop itself from such reading as this. Familiarity with the best thoughts and expressions would lead children, with comparatively little effort, to think and express themselves in good language." — SAMUEL ELIOT, LL.D., *Superintendent of Schools, Boston*.

The method of teaching reading in the lowest class of our Primary Schools is not fully in accordance with the views here quoted. In fact, it can hardly be said that we have *a* method, for in different schools different methods are adopted. It may be of little consequence whether the alphabet, the phonic, or the word method is used; but it is of vital importance that reading be taught so that words become what they are intended to be, — *vehicles of thought*. Any method which fails to secure this result is wrong, or is unskillfully used.

In reference to the supply of supplementary reading, a beginning has been made under the direction of the Text-book Committee. Twenty-one copies of each of the following books have been bought for the Grammar Schools, each school receiving three copies: "Evangeline," "Snow-Bound," "Legends of Province House," "Tales from Shakespeare," and Carlyle "On the Choice of Books." With the use of *three* copies, two for the pupils and one for the teacher, a reading-exercise can be conducted with the same economy of time as if each scholar were supplied with a book, for one book can be passed while a pupil is reading from the other. These books were intended for the upper classes. The lower classes are not supplied except through the efforts of their teachers; and I am glad to say that a commendable degree of interest has been manifested by them with reference to securing fresh reading for their pupils. They have procured books at their own expense, have invited their pupils to bring them from home with the consent of their parents, and have continued the practice of collecting from papers and magazines interesting pieces, and pasting them upon cards; and in the Primary Schools they have written short paragraphs of new reading upon the blackboard as a daily exercise. The time has come when some definite plan should be adopted by which all the classes in the Grammar and Primary Schools may be provided with the right kind and amount of reading-matter additional to that of their text-books. The Primary Schools

at least should be supplied at once. I have already collected all the copies of "The Nursery" belonging to the schools, with a view to having them assorted and put into packages of thirty bearing the same date. These will be returned to the schools for the use of the first classes, and also for the second if the supply is sufficient. I trust this will be the case; for, in response to an invitation published without charge in the Cambridge papers, I have received many additional copies from persons willing to give them for the benefit of the schools. These packages are to be changed, perhaps once in two weeks, according to a definite plan. By this arrangement the first class will be well supplied for the coming year, and the second class would be, were not the reading in "The Nursery" rather difficult for the grade. The plan of having the third class buy the Second Reader, and the second class the Third, before the end of the school-year, is, in my judgment, not desirable. In the first place, it is not more difficult reading that is needed, but a larger amount similar in character to what has been read. In the second place, scholars who are not promoted at the end of the year are obliged in September, after having read in an advanced book, to go back to the one they laid aside five months before. This is a constant source of trouble. It seems to the parent that his child not only fails of promotion, but is put into a lower class. I recommend that the third class, on the first of February each year, buy the Franklin First Reader instead of Hillard's Second, and the second class buy the Franklin Second Reader instead of Hillard's Third.

Near the close of the last school-year, accompanied by the Grammar Masters, each in turn, I heard all the classes of the Grammar Schools read. The reading was not confined to the text-books. Nearly one-half of the scholars read selections which I had taken with me for the purpose of testing their ability to read at sight. The results were gratifying. Not that the reading was all that it should be; but it showed that scholars were no longer drilled for a whole term upon a few favorite pieces, but were accustomed to read what they had not before seen. Our teachers, however, are working in this direction at a great disadvantage. Books are needed; not, as I said in a former report, a library containing a large number of miscellaneous books, but one containing a sufficient number of

copies of a few carefully selected books to enable a whole class at the same time to read or study a particular author.

I do not expect our schools will be thus supplied for years to come ; not, perhaps, until some person, realizing how important it is that the young acquire a taste for *good* reading, leaves for the Cambridge schools a fund to be used in the same manner as the Howland Fund in New Bedford, to which reference has been made. I trust, however, that yearly a few books will be provided for each class of the Grammar and Primary Schools, in accordance with some systematic plan.

If I have occupied considerable space in my reports from year to year upon the subject of reading, and have strongly urged the adoption of measures to secure an abundant supply of suitable reading-matter, it is because I believe our schools should not only teach a child to read, but aim to awaken in his mind a healthy desire for reading, and fit him to recognize and appreciate the best, rejecting all else. It has been well said, "No thoroughness of instruction can atone for a failure to develop a correct literary taste in our pupils. The school is soon left behind, and in the busy pursuits of life its lessons are forgotten ; but a fondness for reading once acquired remains a permanent and priceless possession."

Unclassified Schools.

At the meeting of the School Committee in October, 1869, an order was passed, directing the Committee on Rules and Regulations to consider and report a substitute for the suspension of pupils. That Committee, at the December meeting, reported that they had matured no plan which they would be willing to present to the Board, and recommended that the subject be referred to the next School Committee. This order was passed during the year when "punishment intended to act through the production of bodily pain" was prohibited. In March of the following year, the regulation in reference to discipline was changed so as to allow corporal punishment under certain restrictions. These restrictions, however, with most teachers amounted to prohibition. In September, 1871, the restrictions were modified, and our present rule adopted. The rule is as follows : —

“It is enjoined on the instructors to exercise vigilant, prudent, and firm discipline, and to govern by persuasion and gentle measures, as far as practicable. No pupil shall be kept after school-hours more than half an hour after each session. No scholar on entering the schools of the city shall be subject to corporal punishment in any form. But if any scholar prove to be disorderly or refractory, on due notice to parent or guardian, and on the written consent of the Committee having charge of the school, such scholar shall be liable to corporal punishment during the remainder of the term.

“Any instructor may suspend a pupil from school for violation of the school regulations or the rules of the school, or for any other sufficient cause; but he shall immediately report the case to the parent or guardian of such pupil, and to the sub-committee of the school, or to the Superintendent of Schools, with a written statement of the cause of such suspension.”

Under this rule teachers have ample authority, and scholars sufficient protection. The practical working of it, however, is not satisfactory. Suspension from school should mean to the child more than an interview with the Committee or Superintendent: it should mean *reformation* or *expulsion*.

I know it is a serious matter to turn a child into the streets, and some better way should, if possible, be provided; but it is also a serious matter to keep him in school when his influence is “only evil continually.” It has been truly and forcibly said that “the well-behaved majority have rights as well as the disorderly and disobedient few.” Three years ago I raised the question whether an ungraded school should not be established, to which those who are the real cause of trouble in the different schools should be sent. I now recommend that a special committee be appointed to consider this question, believing that the time has come when the experiment should be tried.

Under the head of “Unclassified Schools,” I find in the Report of the Superintendent of Instruction, Cleveland, O., the following:—

“The establishment of this school is an event well worthy of record. It bears a title as little obnoxious as possible; but it is designed for those whose influence is found to be pernicious to their associates, and who are incorrigible by those means of discipline which seem to be fit to be used in the schools at large. Its principal purpose is to guard the masses of children under the care of the

Board from daily contact, in the class-room and on the playground, with children whose example tends to corrupt every one about them ; to protect the young and the weak from those whose domineering habits or violent tempers make them unsafe companions.

“ It cannot be disguised that the street and home training of many boys is in crime rather than virtue, filthiness rather than purity ; and parents have a right to demand of the community, in assuming the education of their children, that they be shielded from the influence of such as these. Some of them ought to be in the House of Refuge or at the Reform Farm, but commitment to these institutions is beyond the jurisdiction of the Board.

“ To expel them from school, and turn them upon the streets, would be the very worst remedy that could be conceived of. There was but one thing that remained to be done. The school was established in the first week of March, 1876, and for the remainder of the year the attendance was very small ; but its influence was not measured by the number sent to it. In all the schools within practicable distance, the effect was at once too evident to be disregarded by any one who may have doubted the policy of the movement. By referring to the report of Mr. Day, it will be seen that he recommends the founding of such a school on the West Side. I heartily concur in the recommendation.”

Mr. Day in his report says, “ Less than one year ago the school known as the Unclassified School was established on the East Side. To it were sent those boys whose presence in and about the various buildings was productive of disturbance and hindrance of proper school-work. Although the number of pupils attending this school has been uniformly small, yet so restraining has its influence been upon the conduct of others inclined to evil that I desire to recommend the establishment of a similar school upon the West Side. Such a school for incorrigibles would rid the various buildings of a most disorganizing element, and thus enable teachers to devote their time and energy to those remaining.”

Economy of Time.

Perhaps no word has been more frequently heard during the past few years than *economy*. It has usually had reference, however, to the expenditure of money. The Committee are able to report a saving of *twenty per cent* in the cost of the schools in two years. “ Time is money,” is the old proverb. Is it not really more ? Is it not opportunity for knowledge and usefulness ? Cannot a saving of time be effected, as well as of

money? This can be accomplished, I believe, by the following methods: (1.) By eliminating from the course of study, not any one subject perhaps, but parts of subjects unimportant in themselves, and unsuited to the age, capacity, and wants of the respective classes. (2.) By a more liberal supply of materials necessary to secure the most effective work. (3.) By a more judicious use of time. I do not propose now to speak in detail of the first and second methods, but only of the third. In my visits from school to school, nothing is more noticeable than the difference in real value between the work done *in a given time* in one school, and that done in another. One teacher has methods by which he holds every member of his class to the work before him; while another with different methods commands the attention of only a few at a time. One teacher understands the importance of effort concentrated upon a given point, gaining which other points are easily secured; another gives to each topic an equal amount of time and thought. Let me be more specific. In one school I heard a class read forty-five minutes, each scholar reading in turn. The school was orderly and quiet; but it seemed to me that the benefit derived from the exercise was chiefly that gained by each scholar from reading his own paragraph. In another school I heard a class read thirty minutes. This class was arranged in two divisions, and a part of the reading was in concert. The teacher called for the reading as follows: "John — Mary — first division — second division — Susan — class — James," and so on, calling, perhaps, the same scholar several times. Each scholar and division promptly read when called on. I will add that the concert-reading was confined to one or two sentences at a time, the principal object in its use being to secure attention. Can there be any question which of these exercises was the more profitable? In my judgment, *more* was accomplished in the thirty minutes than in the forty-five.

In teaching spelling, time is often wasted, both in study and in recitation, upon words seldom, if ever, misspelled. A child would probably spend as much time in the study of the word *exploration* as in that of *preparation*; and yet three hundred scholars belonging to different schools, writing these words without study, failed on them in the ratio of one to thirty-two. On the words *refreshment* and *especially*, the failures were as

one to forty-six. Teachers should know by repeated tests what words require careful study, and should by some method indicate these to their scholars in assigning lessons. Spelling-books should be arranged with this in view. The spelling of difficult words can be more securely fixed by writing them every day for a week than by writing them the same number of times at intervals extending through months. Let me not be understood, however, to favor the spelling of difficult words unless they are in common use.

The same principle is true with reference to fixing the pronunciation of certain words. Many words are mispronounced all the way through the different grades of schools. To correct these errors when they occur does but little good: they are not the result of ignorance, but of habit. A list of such words has been prepared by the Grammar School teachers, that special drill may be given upon them. This list is printed in the Appendix.

Classes are often detained too long at a time upon a given subject. Work in arithmetic is often confined to practice under one rule for days and perhaps for weeks. A better way would be to be constantly advancing to new work, and at the same time keeping in view the old. A lesson of ten examples all in division is not so profitable as one which contains two examples under each of the preceding rules and four in division.

Punctuation and the use of capitals may be taught incidentally better than by set lessons. A class may be reading the following passage, to which I happen to open: "This increased the suspicion of the French, and when France and England arrayed themselves against each other in the Old World, in the War of the Austrian Succession, their American colonies at once followed their example. The struggle was here known as 'King George's War.'" After reading this, let the scholars close their books, and express their opinions as to the capitals and punctuation-marks to be used; then re-open them, and compare their own views with the passage as printed. Such an exercise will take but a few minutes, and will tend to make scholars more observing as they look at the printed page.

A supply of short stories for Primary Schools, and "Cards of Information" for Grammar Schools like the one found in the Appendix, both to be used for *silent reading*, would be another means by which a waste of time might be prevented. It often

happens that individual scholars finish their regular work before others of their class. These stories and cards could be used to occupy such unemployed time.

No method should be continued from year to year without a careful inspection of results, to see whether by some other method the same or better results could not be secured with a *less expenditure of time*.

Miscellaneous.

A change has taken place in the mastership of one of our Grammar Schools. This is of infrequent occurrence in the history of the schools of Cambridge. At the present time four of the seven masters have held their positions for periods varying from twenty to forty years; and the immediate predecessors of two of the remaining three held theirs, one for twenty years, and the other for twenty-seven; while Mr. Wheeler, who has just resigned, was master of the Shepard School for nearly fourteen years. These lengthened terms of service are not wholly confined to the Grammar Masters. Turning to the list of teachers in the employ of the city twenty years ago, I find the names of thirteen in other grades and positions who are to-day doing their best work.

I gladly avail myself of this opportunity to bear testimony to Mr. Wheeler's ability as a teacher, and to his efficient management of the Shepard School. By this resignation the city loses one of its most valuable teachers. Mr. Edward O. Grover, the newly appointed master, has already entered upon his duties in a manner to assure success.

By the consolidation of classes in the Primary Schools two teachers were obtained for the Grammar Schools. It is frequently the case that a school could be well arranged under one teacher less, were it not for twenty or twenty-five scholars who cannot be scattered into different rooms without forming one or two additional classes of only six or eight scholars. I have sometimes thought it would be well to establish a "Half School Grade" of assistant teachers with a salary perhaps of three hundred dollars. If graduates of the Training-School were in such positions, they would be gaining, under the most favorable circumstances, the experience needed for the management of larger and more difficult classes.

More than five hundred children attend school at the Willard Schoolhouse. In only two other school buildings in the city is there a larger number. The question might be raised, whether one of the teachers in this building should not be a male teacher.

The new method adopted for the private examinations has not been tried a sufficient length of time to show its merits fully. Its advantages, however, over the old method, are even now apparent. The Committee have in their possession reports more valuable than those of previous years, because based upon a more thorough examination of the schools.

Important alterations have been made in the Washington Schoolhouse by which greater safety has been secured in case of fire. In making these changes a room for the use of the master, which was greatly needed, was obtained, and the arrangement of the stairs and dressing-rooms was much improved. The alterations cost about twenty-five hundred dollars.

The Supervisors of the Schools of Boston have issued a pamphlet entitled "Suggestions accompanying the Course of Study for the Grammar and Primary Schools." These suggestions are the results of extended experience and observation, and would be of permanent value to our teachers. I therefore recommend that they be printed in connection with the Annual Report in place of the usual "examination questions." The consent of the Supervisors has already been obtained.

In closing my reports, if I have omitted to speak of the relations which have existed between the Committee and myself, it is not because I have failed to appreciate the kindness and courtesy with which I have at all times been treated by every member of the Board.

FRANCIS COGSWELL,
Superintendent of Public Schools.

ORDINANCES PASSED IN 1878.

An Ordinance in Relation to the Board of Health.

SECTION 1. In the month of January in the current year, the Mayor and Aldermen shall appoint two persons who shall serve on the Board of Health of the City,—one person for one year, and one person for two years; and annually thereafter shall appoint one person to serve thereon for a term of two years. Any vacancy shall be immediately filled in like manner for the unexpired term.

SECT. 2. The persons so appointed shall serve without compensation, and their respective terms of office shall begin on the first Monday of February next succeeding their appointment.

SECT. 3. The Board shall have suitable accommodations and conveniences provided at the charge of the City, under the direction of the Committee on Public Property.

SECT. 4. The Board shall, on or before the tenth day of February in each year, submit to the Committee on Finance of the City Council an estimate in detail of the annual expenditure required, and shall, in the month of December of each year, report to the City Council in detail an accurate account of all receipts and disbursements during the financial year of the City.

[Adopted Jan. 23, 1878.]

An Ordinance establishing the Office of City Physician.

SECTION 1. In the month of January, in the year eighteen hundred and seventy-eight, and every third year thereafter, there shall be appointed by the Mayor and Aldermen a City

Physician. He shall enter upon the duties of his office upon the first Monday of February next succeeding his appointment. He shall receive an annual salary of three hundred dollars, payable quarterly. He shall be removable at the will of the Mayor, with the approval of the Board of Aldermen. A vacancy shall be immediately filled in like manner at any time for the unexpired term.

SECT. 2. The City Physician, upon notice in writing from the Mayor or Chief of Police, shall examine into the nuisances, sources of filth, and causes of disease, within the City, and inquire into all sources of danger to the public health, and report thereon to the Board.

SECT. 3. He shall supply the physicians of the city institutions and dispensary with vaccine virus at the expense of the City, to be charged to the expenditures of the Board of Health.

SECT. 4. He shall, when requested by the Mayor, Board of Aldermen, or Chief of Police, examine all candidates for appointment on the police force; the condition of all officers absent from duty; all cases of injury whereby the City may become liable: and he shall examine into causes of death of persons dying with no physician in attendance.

[*Adopted Jan. 23, 1878.*]

An Ordinance in Relation to Office Hours at the City Hall.

SECTION 1. On Saturdays the various offices at the City Hall shall be closed at two o'clock in the afternoon; *provided*, however, that, in case of necessity, any office may be left open until a later hour, at the discretion of the head of the department occupying such office, or the committee or board having charge of such department.

SECT. 2. All ordinances and parts of ordinances inconsistent herewith are hereby repealed.

[*Adopted Feb. 27, 1878.*]

An Ordinance in Relation to the Salaries of certain City Officers.

SECTION 1. The salaries of the City officers hereinafter named shall continue and be paid as at present established until the first Monday in January, 1879, and no longer, namely:

	Per year.
City Engineer	\$2,700
City Solicitor	2,500
Clerk of Committees	1,500
Superintendent of Streets	1,800
Chief Engineer Fire Department	1,200
Four Assistant Engineers Fire Department, each	400
Clerk of Board of Engineers Fire Department	50
City Messenger	1,500
Superintendent of Lamps	400

SECT. 2. All ordinances and orders and parts thereof inconsistent herewith are hereby repealed.

[*Adopted April 17, 1878.*]

An Ordinance in Relation to Licenses.

SECTION 1. Licenses granted to keepers of intelligence-offices, dealers in junk, old metals and second-hand articles, pawnbrokers, and keepers of billiard-saloons and bowling-alleys, shall, unless sooner revoked, continue in force until the first day of May next ensuing.

SECT. 2. All ordinances and parts of ordinances inconsistent herewith are hereby repealed.

[*Adopted May 15, 1878.*]

An Ordinance in Amendment of an Ordinance in Relation to Ordinances.

Sect. 2 of chap. 17 of the Revised Ordinances is hereby amended by striking out the word "all" in the second line, and inserting in place thereof the words "one or more."

[*Adopted June 5, 1878.*]

An Ordinance in Amendment of an Ordinance in Relation to Streets.

SECTION 1. Chap. 25 of the Revised Ordinances is hereby amended by adding at the end thereof the following sections, to be numbered respectively Sections 37, 38, and 39.

Sect. 37. Whenever any appropriation of money shall have been made by the City Council for watering streets, no part of said appropriation shall be expended except by order of the Joint Standing Committee on Roads and Bridges, and upon a warrant drawn by the Mayor upon the City Treasurer and duly countersigned by the Auditor.

Sect. 38. No greater sum shall be paid for watering any street than the amount actually paid to the Committee by persons residing on said street.

Sect. 39. The Joint Standing Committee on Roads and Bridges shall contract with some suitable person or persons for watering any street or streets, when an amount equal to one-half the expense thereof shall first have been subscribed and paid into the hands of the chairman of said Committee; but no money shall be paid from said appropriation for any watering not done in pursuance of a contract so made.

SECT. 2. Chap. 30 of the Revised Ordinances, and all ordinances and parts of ordinances inconsistent herewith, are hereby repealed.

SECT. 3. This Ordinance shall take effect on the first day of January, 1879.

[*Adopted June 5, 1878.*]

An Ordinance in Amendment of an Ordinance in Relation to Taxes.

SECTION 1. Sect. 3 of chap. 26 of the Revised Ordinances is hereby amended by striking out the words "twentieth day of August" in the fourth line of said section, and inserting in place thereof the words "first day of September."

SECT. 2. This Ordinance shall go into effect on its passage.

[*Adopted June 5, 1878.*]

An Ordinance in Relation to the Payment of Salaries of City Officers.

SECTION 1. All salaries of City officers which are now payable quarterly shall hereafter be paid in equal monthly instalments.

SECT. 2. All orders, ordinances, and parts of ordinances, inconsistent herewith, are hereby repealed.

[Adopted June 19, 1878.]

An Ordinance to establish the Salaries of certain City Officers.

SECTION 1. On and after the first Monday in January, 1879, the salaries of the City officers hereinafter named shall be as follows, namely:—

(The salaries are annual unless otherwise stated.)

Mayor	\$1,800 00
Treasurer and Collector	3,000 00
City Clerk	3,000 00
Assistant City Clerk	1,000 00
Clerk of Common Council	200 00
Auditor	1,500 00
Board of Assessors	3,900 00
Assistant Assessors (per day)	3 00
City Engineer	2,500 00
Chief of Police	1,600 00
Captains of Police	1,000 00
Sergeants of Police (per day)	2 62½
Policemen (per day) who are on the force at the close of the year 1878, who are re-appointed, and all others after two years of service	2 50
Policemen (per day) for all appointed after the first Monday in January, 1879, and until two years of service	2 25
Treasurer of Commissioners of Sinking Funds	200 00
City Solicitor	2,000 00
Clerk of Committees	1,800 00
Superintendent of Streets	1,700 00
Chief Engineer of Fire-Department	1,000 00
Assistant Engineers of Fire-Department, each	250 00
Foremen of Engine and Hook-and-Ladder Companies	168 00

Assistant Foremen of Engine and Hook-and-Ladder Companies	\$156 00
Engineers of Steam Fire-Engines (per month)	80 00
Drivers of Steam Fire-Engines (per month)	65 00
Drivers of Hook-and-Ladder Trucks and Hose-Carriages (per month)	65 00
Members of Engine and Hook-and-Ladder Companies	144 00
Fire-Alarm Telegraph Operator (per month)	80 00
Assistant Fire-Alarm Telegraph Operator (per month)	65 00
City Messenger	1,400 00
Superintendent of Lamps	350 00
Inspector of Milk	175 00
Sealer of Weights and Measures	350 00
City Physician	300 00

[Adopted July 31, 1878.]

An Ordinance in Relation to Health.

SECTION 1. It shall be the duty of the Board of Health to be vigilant and active in protecting the public health; to see that the laws and ordinances in relation to the same are enforced; to communicate its views to the City Council from time to time, as it may deem expedient; and it shall have power to call upon the Police Department and the various City officers to aid it in the performance of these duties.

SECT. 2. The Board of Health shall make all contracts and regulations for the cleaning of private cesspools, vaults, and privies; *provided*, however, that the expenditure for the purposes herein enumerated shall not exceed the amount previously appropriated therefor by the city; and all contracts for such work shall contain the condition that they shall be performed to the satisfaction of the Board of Health.

SECT. 3. The Board of Health shall organize annually by the choice of one of its members as chairman. The said Board shall also appoint a secretary, whose duty it shall be to have charge of the records of said Board.

SECT. 4. The said Board shall annually, on or before the tenth day of February, send to the City Council an estimate, in detail, of the appropriations required by the Health Department during the next financial year. All bills for expenditures from

the appropriations for the Health Department shall be approved in writing by a majority of said Board at some meeting thereof.

SECT. 5. The said Board of Health shall annually, in the month of December, present to the City Council a report made up to and including the last day of the preceding November, containing a full and comprehensive statement of the acts of the Board during the year, and a review of the sanitary condition of the city.

SECT. 6. Whenever the Board of Health does, or causes to be done, work for any person, the Board of Health shall enter in books to be kept for that purpose, all such work done, with the price thereof, and shall forthwith make out bills for the same, and deliver them to the City Treasurer for collection, who shall forthwith demand payment of the same, and shall, on the first day of every month, report in writing, to the Auditor of Accounts, a list of the bills so delivered; and, in case any bills or dues under this Ordinance remain unpaid at the expiration of thirty days after demand for payment as aforesaid, the said Treasurer shall collect the same according to law.

Interment of the Dead.

SECT. 7. The Board of Health shall approve the certificate of the cause of death obtained from the physician, if any, in attendance at the last sickness of any person; and no burial permit shall be given by the City Clerk until such certificate has been so approved.

SECT. 8. No person shall bury or inter, or cause to be buried or interred, any dead body in violation of any direction or order of the said Board.

SECT. 9. No person shall inter, or cause to be interred, any dead body in a grave less than three feet deep from the surface of the ground surrounding the grave to the top of the coffin.

SECT. 10. During the month of January annually, or within sixty days thereafter, the Board of Mayor and Aldermen shall appoint for a period of one year, from the first Monday of February in the year in which they may be appointed, such a number of funeral undertakers as may be deemed expedient, and shall fix their compensation. Such undertakers shall be responsible for the decent, orderly, and faithful management of the funerals undertaken by them, and for a strict compliance

with the ordinances of the city in this behalf. Each undertaker may employ porters, of a discreet and sober character, to assist him, and he shall be accountable for their conduct; said undertakers and porters may be removed at the pleasure of the Board. No person not appointed as aforesaid shall open any tomb or grave for the purpose of depositing or removing a dead body, without the permission of the Board of Health.

SECT. 11. No person shall bury or inter, or cause to be buried or interred, any dead body at any other time of the day than between sun-rising and sun-setting, except when otherwise permitted by the Board of Health.

SECT. 12. The Board of Health is authorized to make and adopt any regulations in relation to the interment of the dead which it may deem expedient.

Vaults and Drains.

SECT. 13. The owner, agent, occupant, or other person having the care of any tenement used as a dwelling-house, or of any building occupied as a manufactory, shall furnish the same with a sufficient drain under ground to carry off the waste water, and also with a suitable water-closet or privy, the vault of which shall be sunk under ground and built in the manner hereinafter prescribed, and of a capacity proportionate to the number of inhabitants of such tenement, or of those having occasion to use such privy; and no person shall suffer any waste or stagnant water to remain in any cellar, or on any lot of land or vacant ground, owned or occupied by him, so as to become a nuisance, or offensive, or dangerous to the public health. Any such owner, agent, occupant, or other person who shall neglect to comply with the provisions of this section after due notice shall be liable to a penalty of not less than five dollars, nor more than twenty dollars, for each and every week during which such offence shall continue.

SECT. 14. All privy-vaults hereafter constructed shall be made of brick and cement, and contain at least eighty cubic feet, and the inside of the same shall be at least two feet distant from the line of every adjoining lot, and at the same distance from every street, lane, alley, court, square, or public place, or public or private passage-way; and they shall be so constructed as to be conveniently approached, opened, and

cleaned. Every vault or cesspool shall be made tight, so that the contents thereof cannot escape therefrom, except as is provided in sect. 17. All preparation for cleaning a cesspool, vault, or privy shall be made by the person liable to the penalty prescribed in sect. 13; and, in case of neglect to make such preparation, it shall be made by the City, and the expense thereof be charged to such person.

SECT. 15. The City Engineer, under the direction of the Board of Health and the Committee on Sewers, is authorized to permit, under such restrictions as it may deem expedient, the construction of sufficient passage-ways or conduits under ground for the purpose of conveying the liquid contents of any vault into any common sewer or drain.

SECT. 16. If the Board of Health shall at any time be satisfied that any tenement used as a dwelling-house, or any such other building as is mentioned in the thirteenth section, is not provided with a suitable water-closet, privy, vault, cesspool, and drain, or either of them, as aforesaid, it shall give notice in writing to the owner, agent, occupant, or other person having the care thereof; or in case neither the owner, agent, or person having the care thereof is an inhabitant of the City, public notice in one newspaper printed in Cambridge, requiring such owner, agent, occupant, or other person, within such time as it may appoint, to cause a proper and sufficient water-closet, privy, vault, cesspool, and drain, or either of them, to be constructed for such tenement or other building; and, in case of neglect or refusal to obey such notice, the Board of Health shall cause such water-closet, privy, vault, cesspool, and drain to be made for such tenement or other building, at the expense of such owner, agent, occupant, or other person; and in case any such water-closet, drain, vault, cesspool, or privy is constructed as aforesaid, for the use of more than one house, then the owner, agent, occupant, or other person having the charge of each of such houses, shall be liable to pay such proportional part of said expense as the Board may determine.

SECT. 17. Whenever any water-closet, vault, privy, cesspool, or drain becomes offensive or obstructed, the same shall be cleansed and made free; and the owner, agent, occupant, or other person having charge of the land in which any water-closet, vault, privy, or drain is situated, the state or condition

of which is in violation of the provisions of this Ordinance, shall remove, cleanse, alter, amend, or repair the same within such reasonable time, after notice in writing to that effect, given by the Board of Health, or the Health Officer, as shall be expressed in such notice. In case of neglect or refusal so to do, the Board of Health may cause the same to be removed, altered, amended, or repaired, as it may deem expedient, at the expense of the owner, agent, occupant, or other person as aforesaid; and such owner, occupant, or other person shall also be liable to such penalties as are prescribed by law or ordinance.

SECT. 18. No cesspool or privy-vault shall be emptied without a permit from the Health Officer, nor in any other mode, or at any other time, than he may direct and appoint; subject to such regulations as the Board of Health from time to time shall make on the subject, and always at the expense of the owner, agent, occupant, or other person having charge of the premises upon which such vault is situated.

SECT. 19. No person shall drive, or cause to be driven, any cart or wagon containing night-soil, or any wagon or cart used for that purpose, through any street, lane, or alley in the city, between the hours of four o'clock A.M. and nine o'clock P.M., nor permit any such wagon or cart to stand between said hours in any street, lane, or alley in said city.

SECT. 20. Books, in which shall be entered all applications for opening and cleansing vaults and cesspools, shall be kept in convenient places, under the charge of the Chief of Police; such applications shall specify the number of loads, if less than the whole contents of the vault or cesspool, to be removed; and they shall receive attention in the order in which they are made, so far as practicable.

House-Offal, Ashes, &c.

SECT. 21. All house-offal, whether consisting of animal or vegetable substances, shall be placed in suitable vessels, and no ashes or other refuse-matter shall be mingled therewith; and the same shall be kept in some convenient place, to be taken away by the City scavengers, at such times as the Board of Health may from time to time direct.

SECT. 22. No person shall remove, or carry in or through any of the streets, squares, courts, lanes, avenues, places, or

alleys within the City of Cambridge, any house-dirt or house-offal, either animal or vegetable, or any grease or bones, or any refuse substances from any of the dwelling-houses or other places in the city, unless such person so removing or carrying the same, and the mode in which the same may be removed or carried, shall have been expressly licensed by the Board of Health, upon such terms and conditions as it may deem the health and interest of the City require.

SECT. 23. No person, without the license of the Board of Health, shall throw into or leave in or upon any street, court, square, lane, alley, public square, public enclosure, vacant lot, or any pond or body of water within the limits of the city, any dead animal, dirt, sawdust, soot, ashes, cinders, shavings, hair, shreds, manure, oyster, clam, or lobster shells, waste water, rubbish or filth of any kind, or any refuse animal or vegetable matter whatsoever. Nor shall any person throw into or leave in or upon flats or tide-water within the jurisdiction of the city, any dead animal or other foul or offensive matter.

SECT. 24. If any of the substances mentioned in the preceding section shall be thrown or carried from any house, warehouse, shop, cellar, yard, or other place, or left in any of the places specified in the preceding section, the owner and occupant of such house, warehouse, shop, cellar, yard, or other place as aforesaid, and the person who actually threw, carried, or left the same, or who caused the same to be thrown, carried, or left, shall severally be held liable for such violation of this Ordinance; and all such substances shall be removed from the place where they have been so thrown or left, as aforesaid, by such owner or occupant, or other person, within two hours after personal notice, in writing, to that effect, given by the Board of Health, or any police-officer; or such removal shall be made under the direction of said Board or its officers, and the expense thereof borne by such owner or occupant or other person.

SECT. 25. All dirt, sawdust, soot, ashes, cinders, shavings, hair, shreds, manure, oyster, clam, or lobster shells, waste water, or any animal or vegetable substance, rubbish or filth of any kind, in any house, warehouse, or other building, cellar, yard, unaccepted street, alley-way, or other place, which the Board of Health may deem injurious to the health of the city, shall be

removed by the owner or occupant of such house, warehouse, other building, cellar, yard, unaccepted street, alley-way, or other place where the same may be found, within twenty-four hours, or such other time as the Board of Health may deem reasonable, after notice in writing to that effect, served personally upon the owner or occupant, or their authorized agent, by any police-officer or person competent to serve a notice in a civil suit, or left at the owner's, occupant's, or agent's last and usual place of abode, if the same be known, and be within the State; or such removal shall be made under the direction of the Board of Health, and the expense thereof borne by such owner or occupant or other person, who shall also be liable to a penalty.

SECT. 26. No swine shall be kept within the limits of the city without a license first obtained therefor from the Board of Health, and then only in such place and manner as it shall direct.

Miscellaneous.

SECT. 27. No person shall bring into the city any putrid, decayed, or unwholesome meat, fish, rice, coffee, fruit, potatoes, grain, or other vegetable product, without a permit therefor from, and in such a manner only as directed by, the Board of Health.

SECT. 28. Every person offending against any of the provisions of this Ordinance, for which no penalty is prescribed by the laws of the Commonwealth, shall forfeit and pay a sum not less than one dollar, nor more than twenty dollars, for each offence.

SECT. 29. The Board of Health shall also have charge of any buildings which are or may be established within the City limits, for the admission of patients having the small-pox or any other infectious disease; and it shall make such rules and regulations for the management and government of the patients and employees as it may deem proper and necessary.

SECT. 30. All ordinances and parts of ordinances inconsistent with the foregoing are hereby repealed.

[Adopted July 31, 1878.]

An Ordinance in Relation to the Fire-Department.

SECTION 1. The Fire-Department shall consist of a Chief Engineer, four Assistant Engineers, and of as many enginemen, hose-men, and hook-and-ladder-men, to be divided into companies, as the number of engines and other fire-apparatus belonging to the City shall from time to time require.

SECT. 2. There shall be appointed annually, in the month of April, by the Mayor, with the approval of the Board of Aldermen and the concurrence of the Common Council, — or in default thereof, afterward, by concurrent vote of the City Council, either branch acting first, — a Chief Engineer and four Assistant Engineers, who shall hold their offices for the term of one year, and until others are elected in their places: *provided, however*, that the City Council may, by concurrent vote, at any time remove from office the Chief Engineer or any Assistant Engineer.

SECT. 3. The Chief and Assistant Engineers, on their appointment, shall receive a warrant, in the words following: to wit, “This certifies that — is appointed Chief Engineer [or Assistant Engineer] of the Fire-Department of the City of Cambridge, and is entitled to all the immunities, and invested with all the powers, belonging to said office. Given under my hand, this — day of —, A.D. 18—. —, *Mayor*. —, *City Clerk*.” And the respective rank of the Engineers shall be determined by the Mayor and Aldermen at the time of their appointment.

SECT. 4. The Engineers so chosen shall meet, and organize themselves into a Board of Engineers, a majority of whom shall form a quorum, and of which, in the absence of the Chief Engineer, the senior Engineer present shall be presiding officer; and they may appoint such Secretary or other officers, without pay, and make such rules and regulations for their own government, as they may see fit. They shall be responsible for the discipline, good order, and proper conduct of the whole Department, both officers and men, and for the care of all houses, engines, horses, hose-carriages, and other furniture and apparatus thereto belonging. They shall have the superintendence and control of all the reservoirs and hydrants belonging to the City. They shall certify all bills, except those authorized by

special order of the City Council, the Joint Committee on the Fire-Department, or the Committee on Fuel, and those contracted by the Committee on Public Property for repairs on buildings, and submit the same, monthly, indorsed by the Secretary of the Board, to the Committee on the Fire-Department. They shall have the superintendence and control of all the engine and other houses used for the purposes of the Fire Department, and of all furniture and apparatus thereto belonging, and of the engines and all other fire-apparatus belonging to the city, and over the officers and members of the several companies attached to the Fire-Department; and they may make such rules and regulations for the better government, discipline, and good order of the Department, and for the extinguishing of fires, as they may from time to time think expedient, the same not being repugnant to the laws of this Commonwealth, or to any ordinance of the city, but subject to the approbation of the Mayor and Aldermen. The Assistant Engineers shall report their absences from fires, with the reasons therefor, to the Chief Engineer, who shall keep a record thereof, and of his own absences, and incorporate the same, stating all the facts, into his annual report to the City Council.

SECT. 5. It shall be the duty of said Engineers, whenever a fire shall break out in their respective districts, immediately to repair to the place of such fire, wearing the badge of their office; to require and compel assistance from all persons, in extinguishing the fire, removing furniture, goods, or other merchandise from any building on fire or in danger thereof, and also in pulling down and demolishing any house or building if occasion require; and, further, to suppress all tumults and disorders.

SECT. 6. The Chief Engineer shall have daily office-hours, from nine to ten o'clock A.M., and shall have the sole command at fires over all the other engineers, all members of the Fire-Department, and all other persons who may be present; and shall direct all proper measures for extinguishing fires, protecting property, preserving order, and enforcing the laws, ordinances, and regulations respecting fires; and it shall be the duty of said Engineer to examine into the condition of the engines and all other fire-apparatus, and of the engine and other houses belonging to the city and used for the Depart-

ment, and by the companies thereto attached, severally, as often as once a week, and whenever directed so to do by the City Council, or by the Joint Standing Committee on the Fire Department, and to report the same annually, in the month of December, and oftener if so directed, to the City Council; also, to cause a full description of the same, together with the names of the officers and members of the Fire-Department, to be published in his annual report; and, whenever the engines or other fire-apparatus require repairs, the Chief Engineer shall cause the same to be made, under direction of the aforesaid Committee. And it shall also be the duty of the Chief Engineer, so far as practicable, to examine into the location and condition of fire-apparatus belonging to corporations or private individuals within the limits of the city. He shall also, under the direction of the Joint Standing Committee on the Fire-Department, require the permanent men, when not otherwise engaged, to perform such other duties and do such other work as, in his judgment or that of the Committee, may be deemed proper: *provided*, no alterations shall be made in any building except by order and under the direction of the Committee on Public Property. And it shall be, further, the duty of the Chief Engineer to receive and transmit to the City Council all returns of officers, members, and fire-apparatus made by the respective companies as hereinafter prescribed, and all other communications relating to the affairs of the Fire-Department; to keep fair and exact rolls of the respective companies, specifying the time of admission and discharge, and the age of each member; to report annually, or oftener if directed, all accidents by fire which may happen within the city, with the causes thereof as well as can be ascertained, the number and description of the buildings destroyed or injured, and the amount of loss and insurance on the same, together with the names of the owners or occupants.

SECT. 7. In case of the absence of the Chief Engineer, the engineer next in rank shall execute the duties of his office, with full powers.

SECT. 8. No person who is not a legal voter in the City of Cambridge shall be appointed an officer or member of the Fire-Department.

SECT. 9. Each steam fire-engine company appointed by the

Mayor and Aldermen shall consist of a Foreman, Assistant Foreman, Engineer, Fireman, Driver of the engine, Driver of the hose-carriage, and six Hosemen. The Foreman and Assistant Foreman shall be nominated by the Board of Engineers for appointment by the Mayor and Aldermen, and any person rejected shall not be re-nominated. The Engineer and the two Drivers shall be constantly employed, and shall at all times be in or about the engine-house, except when unavoidably absent, or excused from duty by the Chief or an Assistant Engineer. There shall also be appointed one Engineer at large, who shall be employed in place of any Engineer or Driver who may be absent, or excused from duty.

SECT. 10. The Foreman of each steam fire-engine company shall at fires have charge and direction of his company.

SECT. 11. The Assistant Foreman of each steam-engine company shall assist the Foreman in the discharge of his duties, and also act as Clerk of said company.

SECT. 12. The Engineer of each steam-engine company shall, under the direction of the Board of Engineers, have the sole care of the engine-house and all the property therein belonging to the city. He shall make requisitions on the Chief Engineer for all supplies required for his company. He shall be held personally responsible for the care and condition of the engine, and have it at all times ready for immediate use. He shall be accountable for the proper performance of all duties required of the Drivers, and make report to the Chief Engineer of any neglect on their part.

SECT. 13. The Driver of each steam-engine, and the Driver of the hose-carriage, shall drive and have the charge of the horses of the engine and hose-carriage respectively, and have the same at all times ready for immediate use, and the stable kept neat and clean. They shall also assist the Engineer in keeping the house and apparatus clean, and they and the Engineer shall perform such other duty as may be required of them by the Chief Engineer.

SECT. 14. Each hook-and-ladder company appointed by the Mayor and Aldermen shall consist of a Foreman, Assistant Foreman, Driver, and eleven Ladder-men. The Foreman and Assistant Foreman shall be nominated by the Board of Engineers for appointment by the Mayor and Aldermen, and any per-

son rejected shall not be re-nominated. The Foreman shall, at fires, have charge and direction of his company. The Assistant Foreman shall assist the Foreman in the discharge of his duties, and also act as Clerk of the company. The Driver shall be constantly employed, and at all times be in or about the hook-and-ladder house, except when unavoidably absent, or excused from duty by the Chief or an Assistant Engineer. He shall, under the direction of the Board of Engineers, have the sole care of the house, and all the property therein belonging to the city, and shall be held personally responsible for the care and condition of the same; shall drive and have charge of the horses, shall keep the stable neat and clean, and perform such other duty as may be required of him by the Chief Engineer.

SECT. 15. The Mayor and Aldermen shall, in the month of January in each year, and whenever vacancies occur, appoint the several engine, hose, and hook-and-ladder companies, whose term of service shall continue one year, and until others are appointed; and the members thereof shall receive a warrant, in form substantially like that prescribed for the Engineers, and shall be held to perform all the duties of the office to which they shall be respectively appointed.

SECT. 16. The Foremen shall keep, or cause to be kept by the clerks of their respective companies, fair and exact rolls, specifying the time of admission, discharge, and age of each member, and accounts of all City property intrusted to the care of the several members, and of all absences and tardiness among the same, in a book provided for that purpose by the City, which rolls or record-books are always to be subject to the order of the Board of Engineers and the Mayor and Aldermen. They shall also make, or cause to be made, to the Chief Engineer, true and accurate returns of all the members, with their ages, and the apparatus intrusted to their care, whenever called upon so to do.

SECT. 17. It shall be the duty of the officers and members of the several companies, whenever a fire shall break out in the City, to repair forthwith to their respective engines, hose, and hook-and-ladder carriages, and, in conformity with the directions of the Chief or other Engineer, exert themselves, in the most orderly manner possible, in extinguishing the fire, and in performing any duty that they may be called upon to do by any

Engineer ; and, upon permission of the Chief or other Engineer, shall, in an orderly and quiet manner, return said engines, hose, and hook-and-ladder carriages to their respective places of deposit : *provided*, that, in the absence of all the Engineers, such direction and permission may be given by their respective Foremen.

SECT. 18. Any officer or member may be removed from the Fire-Department by a vote of a majority of the Board of Engineers ; and said vote shall be final, unless, in case of officers and permanent members, the same shall be reversed by the Mayor and Aldermen within fourteen days after it shall have passed ; and the Board of Engineers shall have power to transfer members from one company to another, whenever the interests of the Department shall require.

SECT. 19. In all cases of removal from office or from the Department, by the Engineers, the name of the person removed, with a statement of the reasons therefor, shall be entered on their records ; and a copy of the same shall be transmitted to the Board of Aldermen before their next regular meeting.

SECT. 20. No officer removed from the Fire-Department shall be re-instated therein, unless by a vote of the majority of the Board of Engineers ; and, in such case, said vote shall not take effect until confirmed by the Board of Aldermen ; and no member shall be re-instated, except on nomination by the Mayor, confirmed by the Board of Aldermen.

SECT. 21. The Foreman of each company, immediately on his arrival at any fire, shall report himself to an Engineer, and shall remain by his company, and the apparatus of which he has charge, during the fire, preserve order, direct their operations, and protect them from being interrupted in the discharge of their duty.

SECT. 22. In the absence of the Foreman of any company, the officer next in rank, who is present, shall take the command, and be clothed with all the powers and responsibilities of Foreman.

SECT. 23. No company shall be allowed to impose fines upon its members ; but it shall be the duty of the Clerk of each company to enter in the roll-book provided by the City, all absences of each officer or member of said company from all fires, and alarms of fire, and from the monthly and special meetings au-

thorized by the Chief Engineer, and to make a monthly return of the same to the Board of Engineers. And for every such absence, except in case of sickness, there shall be deducted from the pay of such officer or member the sum of one dollar. And if any officer or member shall have been absent from more than one-third of the fires, or alarms of fire, occurring during the quarter, if the same are more than five in number, except in case of sickness, such absence shall be considered good cause for his discharge from the Department.

SECT. 24. Every member of the Department shall wear, at all fires, such badge as the Engineers shall prescribe; and no person without such badge, excepting members of the City Council and those having permission, shall enter within the lines formed at any fire.

SECT. 25. No intoxicating liquors of any kind shall be carried into any of the houses used by the Fire-Department; nor shall any gambling be permitted therein.

SECT. 26. No company shall leave the city in case of fire in the neighboring towns, except by the consent of the Chief Engineer, or one of the Assistant Engineers; and no company shall leave the city on an excursion, unless by the permission of the Mayor and Aldermen, and such permission shall in no case be deemed to include the apparatus.

SECT. 27. The Board of Engineers shall, from time to time, make such rules and regulations as in their judgment shall, as far as possible, prevent refreshments being furnished to any persons except members of the Fire-Department; and no bill or charge for intoxicating liquors furnished at fires shall be approved by the Committee on the Fire-Department, or paid by the City.

SECT. 28. No person shall burn out or set fire to his chimney, stove-pipe, or flue, at any time except between sunrise and two o'clock in the afternoon, or unless the roof of his own and the neighboring houses and buildings are at the time well wet, or covered with snow.

SECT. 29. No person shall set on fire by night any straw, shavings, or other combustible materials, in any street, lane, or alley, or other public place in the city.

SECT. 30. The Board of Engineers shall examine into all places where shavings and other combustible materials may be

deposited or collected, and shall cause the same to be removed by the owners or occupants of any such places, and at their expense, whenever the security of the city against fire shall require it.

SECT. 31. The members of the Fire-Department shall be paid monthly at such rates as the City Council shall from time to time determine.

SECT. 32. The Joint Standing Committee on the Fire-Department shall have the care and management of the rooms, apparatus, and machinery connected with the Fire-Alarm Telegraph; and shall have power to appoint an Assistant Superintendent, an operator, and such other assistants as may be required from time to time, and to discharge them. The compensation of the Assistant Superintendent shall be the same as that of an engineer of a steamer-company; and the compensation of the operator shall be the same as that of a Driver of a steamer-company. The said Committee shall have power to determine the persons to whom shall be intrusted the keys of the signal-boxes connected with the said Fire-Alarm Telegraph; and generally shall have the charge and management of the same, subject to the order of the City Council.

SECT. 33. The Committee on the Fire-Department shall make rules for giving alarms of fire by telegraph, and may alter the same from time to time; and they shall be placed on file in the office of the Engineers of the Fire-Department, and with the City Clerk, who shall publish the same in one or more newspapers in the City of Cambridge.

SECT. 34. No person shall open any of the signal-boxes connected with the Fire-Alarm Telegraph, except in case of fire; or interfere in any way with said boxes by breaking, cutting, injuring, or defacing the same; or tamper or meddle with said boxes, or any part thereof; nor shall any person interfere with the poles by which the wires of the Fire-Alarm Telegraph are supported, by breaking, cutting, injuring, or defacing the same, by the posting of placards or bills upon them, or in any other manner.

SECT. 35. Whoever violates any provision of the preceding section shall forfeit and pay a fine of not less than five dollars, nor more than twenty dollars, for each offence.

SECT. 36. The Chief Engineer shall, by virtue of his office,

be the Superintendent of the Fire-Alarm Telegraph; and the Board of Engineers shall have the control of all instruments, wire, machinery, and other property and apparatus connected therewith, under direction of the Joint Standing Committee on the Fire-Department. It shall be the duty of said Superintendent and said Board to see that the Telegraph is at all times in complete working order, and, in case any alterations or repairs are necessary, to cause the same to be made immediately. Said Board shall have power to make such rules for the regulation and government of the Telegraph and the Telegraph Corps as it may deem necessary, subject to the approval of the Joint Standing Committee on the Fire Department.

SECT. 37. All ordinances and parts of ordinances inconsistent herewith are hereby repealed.

[Adopted Dec. 4, 1878.]

An Ordinance in Relation to Accounts and Finance.

Auditor of Accounts.

SECTION 1. The City Council shall annually, in the month of January, in convention, by joint ballot, elect an Auditor of Accounts, who shall be sworn to the faithful discharge of the duties of his office, and shall hold his office one year, and until another shall be chosen and qualified; removable, however, at the will of the City Council. His office shall be kept open for business between the hours of eight A.M. and two P.M.; and he shall receive such salary as the City Council shall from time to time determine, the same to be paid in equal monthly payments, and to be in full compensation for all services rendered in his official capacity. No person shall be eligible as Auditor who holds any other office under the city government; and an election or appointment of any person holding the office of Auditor of Accounts to any such office, and his acceptance of the same, shall be a vacation of the office of Auditor of Accounts. Whenever said office shall be vacant, the City Council shall fill the vacancy in the same manner as provided in this section for the annual election of Auditor of Accounts.

SECT. 2. The Auditor shall receive all accounts and claims from persons having demands against the city, which have been

certified as hereinafter provided in sect. 7, and shall carefully examine all such accounts and claims, and see that they are correctly cast and approved, and shall present the same, neatly folded, filed, labelled, and recorded, to the Committee on Accounts. He shall keep a book in such manner and form as the Committee on Accounts shall direct, wherein he shall record the date and amount of every account and claim against the City presented as aforesaid and as finally corrected and allowed by said Committee, and also the name of the person to whom the same shall be allowed, designating the fund or appropriation from which the same shall be paid; and the certificate of the said Committee allowing such accounts or claims shall be made in the book where the same are recorded.

SECT. 3. The Auditor shall, under the direction of the Committee on Accounts, keep his accounts in such form and in such detail as may be necessary to a clear exhibit of all expenditures and receipts. He shall credit each City account with its appropriation for the financial year and with all revenue received on account of the same, and charge against the same the expenditures as they shall from time to time be allowed, as provided in the preceding section. Whenever an appropriation for any account shall be expended, the Auditor shall immediately give notice thereof to the Mayor, the City Council, and the Committee on Accounts, which Committee shall not pass or allow any claim or account chargeable against such appropriation, until the City Council shall have provided the means of paying the same. The Auditor shall once in each month prepare a statement, and furnish each member of the City Council a printed copy thereof, showing the condition of each City account, giving amount of appropriations and receipts, expenditures, and unexpended balances, under the same.

SECT. 4. The Auditor shall countersign all the bonds, notes, and certificates of indebtedness issued for all loans to the City, authorized by the City Council, and also all orders drawn by the Mayor on the City Treasurer as provided in sect. 11. He shall report to the City Council, under the direction of the Committee on Accounts, during the month of December in each year, the expenditures and receipts during the preceding financial year, giving in detail the amount of appropriations and expenditures and the receipts from each source of income;

and the whole shall be arranged, as far as practicable, so as to conform to the accounts of the City Treasurer. He shall include in said report a statement of the funded and temporary loans, the rate of interest thereon, and shall exhibit all the liabilities and assets as shown on the books in his office at the close of the financial year.

SECT. 5. Whenever any order is drawn upon the Treasurer by the Mayor, the Auditor shall charge it under the appropriate head of expenditure, and report the same and the amount thereof to the Committee on Accounts at its next meeting.

City Clerk.

SECT. 6. The City Clerk shall notify the Auditor of all orders passed by the City Council or Board of Aldermen, authorizing appropriations, expenditures, assessments, or abatements, immediately after such orders are approved. He shall also report to him, once at least in every month, all amounts received by him, and paid to the City Treasurer, on account of licenses or fees of any description.

Standing Committees.

SECT. 7. All accounts or claims against the City, before being sent to the Auditor of Accounts, shall be examined, and, if approved, certified by some board or committee, special or standing, as hereinafter provided: bills chargeable to the appropriation for

Bridges, — West Boston, Canal (Craigie's), and Prison-Point, — by the Commissioner on Bridges.

Bridges, — other than the above, and

Street-Department, — Construction, Paving, and Repairs, — by the Committee on Roads and Bridges of the Board of Aldermen.

Cemetery, — by the Commissioners of the Cemetery.

Dana Library, — by the Trustees of the Dana Library.

Fire-Department, — by the Committee on Fire Department.

Care and Repair of Schoolhouses and other Public Buildings, Shade Trees and Public Grounds, and such portion of Incidental Expenses as relates to Public Property, Surrendered Estates, and Burial Grounds, — by the Committee on Public Property.

Health-Department, — by the Board of Health.

Pauper-Department, — Almshouse, Collection of House Offal, and Stone Ledge, — by the Overseers of the Poor.

Lighting Streets, — by the Committee on Lamps.

Police-Department, — by the Committee on Police.

School-Department, — Drawing Schools, Evening Schools, Text-Books and Stationery, Salaries, and Incidental School Expenses, — by the School Committee.

Sewers, — Construction and Maintenance, — by the Committee on Sewers and Drains.

Watering Streets, — by the Joint Committee on Roads and Bridges.

State Aid, — by the Committee on Soldiers and their Families.

Salaries of City Officers, — by the City Clerk and Committee on Finance.

Stationery and Printing, — by the Committee on Stationery and Printing.

Water-Works, — Construction, Maintenance, and Supplies, — by the Water-Board.

Engineering, — by the Committee on Engineer's Department.

Incidental Expenses, — except as hereinbefore provided for, and any other claim not clearly within the province of either of the above committees, — by the Committee on Finance.

SECT. 8. The several boards and committees above mentioned shall have the general supervision and control of the appropriations made to meet the expenditures of their departments respectively.

SECT. 9. The several boards and committees above mentioned shall hold regular meetings in the last seven days of each month for the examination and approval of bills; shall keep a record of the names of the persons whose bills are approved, and of the dates and amounts of said bills. A majority of each of said boards and committees, except the School Committee, shall certify, by their signatures upon such bills, their approval of the same, and pass them to the Auditor on or before the first day of each month. All bills approved by the School Committee shall be certified by the Secretary and at least three members of that Board. No bill shall be approved by any board or committee except at a meeting of which all the members belonging thereto have been notified, and at which there shall be a quorum present.

Committee on Accounts.

SECT. 10. There shall be appointed in the month of January annually a joint standing Committee on Accounts, to consist of two members of the Board of Aldermen and three members of the Common Council; which Committee shall meet on or before the eighth day of each month, and carefully examine all accounts and claims against the City which shall be laid before them by the Auditor, and, after comparing them with his record, shall allow and pass the same if found to be properly entered; but no bill shall be allowed or passed by said Committee unless the same shall bear the written signatures of a majority of the board or committee (other than the School Committee, of which the certificate of the Secretary and three members at least shall be required) authorized on behalf of the City to make the contract, or cause the expenditure to be made; and, when the Committee on Accounts has any doubt concerning the propriety of such bill or account, it shall return the same to the board or committee approving, for explanation; and if not satisfactorily explained it shall be exhibited to the City Council, with the objections, at the next meeting thereof, for its consideration and final decision.

The Committee on Accounts shall direct the Auditor and the Treasurer and Collector as to the manner in which the books, records, accounts, and papers belonging to their several departments shall be kept.

Payment of Money.

SECT. 11. The Mayor is hereby authorized to draw orders on the Treasurer for the payment of all accounts and claims allowed and certified by the Committee on Accounts as provided in the preceding sections, and no other: *provided, however*, he may without action by the Committee on Accounts draw his order to pay any sum by way of advance on contracts made, or on work begun and not completed, upon being satisfied of the necessity therefor by a certificate signed by a majority of the committee controlling the expenditure, within the sum specifically appropriated therefor by the City Council.

SECT. 12. No money shall be paid out of the city treasury except upon the written order of the Mayor, addressed to the Treasurer, countersigned by the Auditor; *provided, however*, that

the City Treasurer may pay, before such order is drawn, any sum of money due on the principal or interest of any note, bond, or other security of the City, or on any judgment against the City, and also refunds certified by the Water Registrar.

City Officials.

SECT. 13. The various boards and City officers who shall, in their official capacity, receive any money on behalf of the City, shall pay to the City Treasurer all the amounts so received once in every month, or oftener if required by the Mayor or City Council; and shall, before making such payment, make a true return to the Auditor of Accounts of said amounts, stating the account upon which the same were received. All other persons who shall have at any time money in their hands belonging to the City shall forthwith pay the same to the Treasurer.

Assessors of Taxes.

SECT. 14. The Assessors of Taxes shall, on or before the first day of September in each year, make a true return to the Auditor of Accounts of the amount of taxes named in the annual warrant placed in the hands of the Treasurer and Collector of Taxes for collection, and shall, upon the first day of each month thereafter, make a return to the Auditor of all other assessments made by them. They shall make a certificate of each and every abatement allowed, and keep a record of the same; which certificate shall be addressed to the Treasurer and Collector of Taxes, and shall state the name of the person assessed, his place of residence, the amount of his tax as shown in the tax-list, and the amount abated: a copy of the same shall be sent to the Auditor of Accounts.

Water Registrar.

SECT. 15. The Water Registrar of the Cambridge Water-works shall, under the direction of the Water-Board, make out the annual bills for water-rates, and deliver the same to the City Treasurer on or before the tenth day of June in each year, and shall make out bills for all other amounts payable to the City on account of the water-works, and deliver the same to the City Treasurer from time to time as they may become due. All the bills so delivered by the Water Registrar shall be numbered to correspond with the number of the charge on his books.

A certificate of each and every abatement and refund shall be furnished by the Registrar, which certificate shall be addressed to the City Treasurer, and shall state the account on which it is allowed, and the number of the bill. The Registrar shall on the first day of every month report in writing to the Auditor of Accounts, the amount of the bills of each class placed in the hands of the Treasurer for collection, and also the amount abated, or ordered to be refunded, during the preceding month.

City Treasurer and Collector.

SECT. 16. The City Treasurer and Collector of Taxes shall be the collector of all rents, water rates, and other sums payable to the City, not otherwise specially provided for. He shall, in the month of June in each year, notify all persons assessed for the use of water that the annual bills for water-rates are due and payable at his office on the first day of July; and he shall give notice of and collect all other bills on account of the Water-works, which may from time to time be placed in his hands by the Water Registrar. He shall supply to the Water Registrar daily a true record of his receipts on account of the Water-works, with the number and amount of each bill collected.

SECT. 17. He shall, under the direction of the Committee on Accounts, keep in books provided for that purpose an accurate and true account of all his receipts and payments on behalf of the City, making the same conform as nearly as may be with the accounts kept by the Auditor. He shall credit each department or account with all sums received on its account, and shall charge to each all sums paid out on such accounts. He shall not pay any money out of the treasury except upon orders of the Mayor drawn in the form hereinbefore prescribed, or except for special purposes as provided in the twelfth section.

SECT. 18. He shall, on the first day of every month, report to the Auditor a written statement, in detail, of all his collections, receipts, and disbursements during the preceding month, with the names of the persons of whom and on what account the same were received or paid. It shall be sufficient, in reporting the receipts for taxes, assessments, and water rates, to state the amount received, and the particular warrant, assessment, or account upon which the collection was made. He shall also report a true record of all discounts, abatements, and repay-

ments allowed during the month on taxes, assessments, water rates, or other accounts.

SECT. 19. The City Treasurer and Collector shall give a bond in such a form as the City Solicitor shall approve, with sufficient sureties, to be approved by the Mayor and Aldermen, in a sum not less than forty thousand dollars; which bond shall be executed, approved, and delivered before he enters upon the duties of his office, and within ten days after his election. Should he fail to give such bond within the time herein required, the election shall be void, and a new election shall be had forthwith. In case of the death or insolvency of any of the sureties on any bond so given, the Treasurer shall immediately give a new bond with sufficient sureties, as hereinbefore provided; and, if he shall fail to give such new bond within a reasonable time after notice to do so, it shall be sufficient cause for removal from office.

SECT. 20. Whenever any assessments for defraying the expenses of constructing or repairing common sewers or main drains, or of completing sidewalks, shall be delivered to the City Treasurer for collection, he shall forthwith demand payment, in writing, of said assessments; and, if any such assessments remain unpaid for three months after such demand, he shall collect the same according to law.

SECT. 21. The City Treasurer shall in person, or by his clerk, make payments to each employee of the City, his authorized agent or attorney; shall take therefor the receipt of no other person than such employee, agent, or attorney; and may, whenever it becomes necessary to save loss of time to the employees, send a clerk with the necessary funds to such localities as may be convenient for paying the men.

SECT. 22. The City Treasurer and Collector shall receive such salary as the City Council shall from time to time determine, to be paid in equal monthly payments, which shall be in full compensation for all services rendered in his official capacity; *provided, however*, that at the end of each month he shall make and give to the Auditor of Accounts a written statement subscribed by him of all fees, charges, costs, and commissions of every kind and description allowed by law and received by him or any deputy collector, sheriff, deputy sheriff, or constable acting under authority of law by his appointment, for collec-

tion of taxes, rates, betterments, assessments, or otherwise during that month; and shall certify thereon that all moneys so received by him or them have been paid into the city treasury. No part of any month's salary shall be paid to him until such statement and certificate shall have been so made and given, and the sums therein mentioned shall have been so paid into the city treasury.

SECT. 23. The Committee on Finance may allow to the City Treasurer and Collector such reasonable sums from time to time as will re-imburse him for expenses necessarily incurred in the employment of deputy collectors, sheriff, deputy sheriffs, or constables, in the collection of poll and personal taxes.

SECT. 24. The City Treasurer and Collector shall appoint the clerks in his office subject to the approval of the Committee on Finance, and shall be answerable for their conduct in the discharge of their duties. Such clerks shall receive such compensation as the Committee on Finance may from time to time determine, and shall be removable at the pleasure of the City Treasurer and Collector or of the Committee on Finance.

SECT. 25. The office of the City Treasurer shall be kept open for business between the hours of eight A.M. and two P.M. during the year.

Finance Committee.

SECT. 26. There shall be appointed, at the commencement of each municipal year, a Committee on Finance, consisting of the Mayor, two members of the Board of Aldermen, the President and five members of the Common Council; which committee shall negotiate all loans to the City that shall be authorized by the City Council, and shall report the amount to the City Treasurer and City Auditor.

SECT. 27. The Committee on Finance shall, in the month of February annually, prepare and lay before the City Council an estimate of the amount of money necessary to be raised for the ensuing financial year, under the various heads of appropriation, and the ways and means of raising the same.

SECT. 28. The Committee on Finance shall, at the close of each municipal year, and as much oftener as they shall deem it expedient, examine and audit the accounts of the City Treasurer; and for that purpose shall have access to all books and vouchers in his possession, or in possession of the Auditor or

any other officer of the City. They shall also examine all notes and securities in his hands belonging to the City, and make report thereof to the City Council.

SECT. 29. The City Treasurer and City Auditor shall make up their accounts to include the last day of November annually; and the financial year shall begin on the first day of December in each year.

SECT. 30. Whenever any bonds for the payment of money shall be issued under the authority of the City Council, such bonds shall be signed by the Mayor and City Treasurer, and countersigned by the City Auditor.

SECT. 31. All ordinances and parts of ordinances inconsistent herewith are hereby repealed.

[*Adopted Dec. 4, 1878.*]

An Ordinance in Relation to Shades and Awnings.

SECTION 1. No canopy, awning, shade, shade-frame, or shade-curtain shall hereafter be erected, placed, or maintained within the limits of any street, unless such canopy, awning, shade, or shade-curtain is constructed of cloth or canvas attached to an iron frame, securely fastened and supported from above, and not less than eight feet above the level of the sidewalk over which it is placed; and the person so placing or continuing to maintain the same shall, at all times and in all respects, conform to any directions in relation to the construction and maintenance thereof which shall be given by the Mayor and Aldermen.

SECT. 2. Any person violating any of the provisions of this Ordinance, or any such direction of the Mayor and Aldermen, shall be liable to a fine not exceeding twenty dollars, and to a like penalty for every day that such canopy, awning, shade, shade-frame, or shade-curtain shall be so maintained.

[*Adopted Jan. 1, 1879.*]

MAYORS

OF

THE CITY OF CAMBRIDGE

FROM 1846 TO 1879.

JAMES D. GREEN,	from May, 1846, to April, 1848.
SIDNEY WILLARD,	“ April, 1848, “ April, 1851.
GEORGE STEVENS,	“ April, 1851, “ April, 1853.
JAMES D. GREEN,	“ April, 1853, “ April, 1854.
*ABRAHAM EDWARDS,	“ April, 1854, “ January, 1855.
ZEBINA L. RAYMOND,	“ January, 1855, “ January, 1856.
JOHN SARGENT,	“ January, 1856, “ January, 1860.
†JAMES D. GREEN,	“ January, 1860, “ July 24, 1861.
‡CHARLES THEO. RUSSELL,	“ July 31, 1861, “ January, 1863.
GEORGE C. RICHARDSON,	“ January, 1863, “ January, 1864.
ZEBINA L. RAYMOND,	“ January, 1864, “ January, 1865.
J. WARREN MERRILL,	“ January, 1865, “ January, 1867.
EZRA PARMENTER,	“ January, 1867, “ January, 1868.
CHARLES H. SAUNDERS,	“ January, 1868, “ January, 1870.
HAMLIN R. HARDING,	“ January, 1870, “ January, 1872.
HENRY O. HOUGHTON,	“ January, 1872, “ January, 1873.
ISAAC BRADFORD,	“ January, 1873, “ January, 1877.
FRANK A. ALLEN,	“ January, 1877, “ January, 1878.
SAMUEL L. MONTAGUE,	“ January, 1878. Now in office.

* Municipal year changed.

†Resigned.

‡ First elected by the City Council.

GOVERNMENT
OF
THE CITY OF CAMBRIDGE.
1879.

MAYOR.
HON. SAMUEL L. MONTAGUE.

ALDERMEN.

EDWIN H. BLAKE.	MOSES G. HOWE.
GEORGE D. CHAMBERLAIN.	MARTIN L. SMITH.
BENJAMIN F. DAVIES.	SIMEON SNOW.
JOSHUA G. GOOCH.	WILLIAM H. WHITNEY.
JAMES M. W. HALL.	SAMUEL F. WOODBRIDGE.

Aldermen, by Wards.

Ward 1.	Aldermen GOOCH and HALL.
" 2.	" SMITH and SNOW.
" 3.	" BLAKE and DAVIES.
" 4.	" CHAMBERLAIN and WHITNEY.
" 5.	" HOWE and WOODBRIDGE.

Clerk.
JUSTIN A. JACOBS.

COMMON COUNCIL.

GEORGE S. SAUNDERS, *President.*

JOHN CONLAN.	EWEN R. MCPHERSON.
MICHAEL CORCORAN.	ISAAC A. NAY.
WILLIAM H. DODGE.	EDWARD T. NICHOLS.
WILLIAM E. DOYLE.	HENRY K. PARSONS.
HENRY H. GILMORE.	GEORGE S. SAUNDERS.
NATHAN G. GOOCH.	JOSEPH W. SMITH.
GEORGE W. GOODNOW.	ALVIN F. SORTWELL.
SAMUEL S. HAMILL.	CHARLES WALKER.
DAVID J. HILL.	JAMES F. WILKINSON.
RUFUS LAMSON.	HARRY B. WINNETT.

Common Council, by Wards.

- Ward 1. Messrs. GOOCH, HILL, SAUNDERS, and WILKINSON.
 “ 2. Messrs. GILMORE, GOODNOW, LAMSON, NAY, SMITH,
 and WINNETT.
 “ 3. Messrs. CONLAN, DOYLE, HAMILL, and SORTWELL.
 “ 4. Messrs. DODGE, MCPHERSON, NICHOLS, and WALKER.
 “ 5. Messrs. CORCORAN and PARSONS.

Clerk.

J. WARREN COTTON.

Page.

WILLIAM PEARSON.

CITY CLERK.

JUSTIN A. JACOBS.

ASSISTANT CITY CLERK.

WALTER W. PIKE.

CITY MESSENGER.

FRANCIS L. PRATT.

COMMITTEES OF THE CITY COUNCIL.

Joint Standing Committees.

On Finance.

Common Council.

The MAYOR. :

The President.

Nathan G. Gooch.

Rufus Lamson.

Aldermen.

Edward T. Nichols.

Martin L. Smith.

William E. Doyle.

James M. W. Hall.

Isaac A. Nay.

On Public Instruction.

Aldermen.

Common Council.

Moses G. Howe.

The President.

William H. Whitney.

James F. Wilkinson.

George W. Goodnow.

Alvin F. Sortwell.

On Ordinances.

Aldermen.

Common Council.

Moses G. Howe.

John Conlan.

Edwin H. Blake.

Charles Walker.

Joseph W. Smith.

On Accounts.

Aldermen.

Common Council.

Joshua G. Gooch.

Ewen R. McPherson.

George D. Chamberlain.

Alvin F. Sortwell.

Harry B. Winnett.

On Public Property.

Aldermen.

Common Council.

Joshua G. Gooch.

Rufus Lamson.

Benjamin F. Davies.

Michael Corcoran.

Edward T. Nichols.

On the Almshouse.

Aldermen.

Common Council.

James M. W. Hall.

William H. Dodge.

William H. Whitney.

David J. Hill.

Harry B. Winnett.

On Roads and Bridges.

Aldermen.
 Samuel F. Woodbridge.
 Simeon Snow.

Common Council.
 Henry K. Parsons.
 George W. Goodnow.
 Samuel S. Hamill.

On Fuel.

Aldermen.
 Benjamin F. Davies.
 Martin L. Smith.

Common Council.
 Nathan G. Gooch.
 William H. Dodge.
 Henry H. Gilmore.

On Lamps.

Aldermen.
 Benjamin F. Davies.
 Moses G. Howe.

Common Council.
 Isaac A. Nay.
 Samuel S. Hamill.
 David J. Hill.

On Printing.

Aldermen.
 George D. Chamberlain.
 James M. W. Hall.

Common Council.
 Michael Corcoran.
 James F. Wilkinson.
 Charles Walker.

On the Fire-Department.

Aldermen.
 Martin L. Smith.
 George D. Chamberlain.

Common Council.
 William E. Doyle.
 Henry K. Parsons.
 Ewen R. McPherson.

On City Engineering.

Aldermen.
 James M. W. Hall.
 William H. Whitney.

Common Council.
 George W. Goodnow.
 Joseph W. Smith.
 David J. Hill.

On Assessors' Department.

Alderman.
 Edwin H. Blake.

Common Council.
 Rufus Lamson.
 Henry H. Gilmore.

On Claims.

The MAYOR.

Aldermen.
 Martin L. Smith.
 Simeon Snow.
 Samuel F. Woodbridge.

Common Council.
 William H. Dodge.
 Rufus Lamson.
 Nathan G. Gooch.
 Henry H. Gilmore.
 John Conlan.

*Joint Special Committee.**On Soldiers and their Families.*

Aldermen.
Benjamin F. Davies.
Joshua G. Gooch.

Common Council.
Joseph W. Smith.
James F. Wilkinson.
William H. Dodge.
Michael Corcoran.
John Conlan.

*Standing Committees of the Board of Mayor and Aldermen.**On Police.*

The Mayor.	Edwin H. Blake.
Samuel F. Woodbridge.	Joshua G. Gooch.

On the Fire-Department.

Martin L. Smith.	George D. Chamberlain.
	Moses G. Howe.

On Roads and Bridges.

Samuel F. Woodbridge.	Simeon Snow.
	Joshua G. Gooch.

On Sewers and Drains.

William H. Whitney.	Edwin H. Blake.
	George D. Chamberlain.

On Licenses.

Edwin H. Blake.	Simeon Snow.
	Moses G. Howe.

On Health.

Simeon Snow.	Samuel F. Woodbridge.
	George D. Chamberlain.

On Bonds.

William H. Whitney.	Benjamin F. Davies.
	James M. W. Hall.

On Claims.

The Mayor.	Simeon Snow.
Martin L. Smith.	Samuel F. Woodbridge.

*Standing Committees of the Common Council.**On Elections and Returns.*

Alvin F. Sortwell. Henry K. Parsons.
 William E. Doyle.

On Bills in the Second Reading.

Harry B. Winnett. Ewen R. McPherson.
 John Conlan.

On Enrolled Ordinances.

Edward T. Nichols. Nathan G. Gooch.
 Isaac A. Nay.

Clerk of Committees.

John McDuffie.

Board of Health.

Henry P. Walcott, *City Physician*.
 Daniel H. Thurston. George F. Piper.

Health-Officer.

Edward R. Cogswell, M.D.

Health-Officers.

Frederick W. Hagar.	Benjamin F. Bridden.
Timothy Ames.	Amos Jones.
Warner W. Simonds.	Leonard Shackford.
Andrew G. Smith.	Thomas D. Cook.
Charles B. Jones.	

Surveyors of Highways.

The same persons who compose the Board of Mayor and Aldermen.

Auditor of Accounts.

Samuel E. Chandler.

Treasurer.

William W. Dallinger.

Assessors.

Artemas Z. Brown. Andrew J. Green.
Edmund B. Whitman.

Assistant Assessors.

Thomas Stearns. Frank P. Stevens.
John S. Pollard. Joseph Whittemore.
Milton L. Walton.

School Committee.

Samuel L. Montague, Mayor, *ex officio*, Chairman.

Ward I.

Horace E. Scudder. John Wilson.
Andrew P. Peabody.

Ward II.

Edward R. Cogswell. Sumner Albee.
James H. Hall.

Ward III.

John O'Brien. George A. Coburn.
George R. Brine.

Ward IV.

William A. Munroe. William H. Orcutt.
Asa P. Morse.

Ward V.

William Fox Richardson. Edmund H. Stevens.
William A. Start.

Secretary.

W. W. Wellington.

Superintendent of Schools.

Francis Cogswell.

Overseers of the Poor.

The Mayor, *ex officio*, *Chairman*.

Sumner Albee.	George D. Chamberlain.
Jonas C. Wellington.	Ezra Parmenter.
Charles E. Vaughan.	

Clerk.

David P. Muzzey.

Warden of the Almshouse.

William E. Hough.

Physician of the Almshouse.

James R. Morse, M.D.

Cambridge Cemetery.***Commissioners.***

The Mayor, *ex officio*.

William Page.	George R. Brine.
George S. Saunders.	John M. Tyler.
George T. Gale.	Curtis Davis.

Superintendent.

James K. Farwell.

Trustees of Dana Library.

The Mayor, *ex officio*, *Chairman*.

Alderman.

Moses G. Howe.

Common Council.

Isaac A. Nay.

Citizens at Large.

Hersey B. Goodwin.	Edward P. Tucker.
John S. March.	

Librarian.

Miss Almira L. Hayward.

Secretary.

John S. March.

Cambridge Water-Board.

The Mayor, and President of the Common Council, *ex officio*.

George P. Carter, *President*. J. Warren Merrill.

John H. Leighton. Chester W. Kingsley.

Henry L. Eustis.

Clerk.

Justin A. Jacobs.

Superintendent of Water-Works.

Hiram Nevons.

Water Registrar.

J. Warren Cotton.

Trustees of Sinking-Fund of Water-Loan.

The Mayor, City Treasurer, and President of the Common Council.

Commissioners on Sinking-Funds of the City.

John M. Tyler.

Joseph A. Holmes.

Robert Douglass.

Charles H. Saunders.

Frank A. Allen.

Knowlton S. Chaffee.

Trustees of the Sanders Temperance Fund.

The Mayor, and President of the Common Council, *ex officio*.

Alderman.

Martin L. Smith.

Common Council.

William H. Dodge.

Michael Corcoran.

Trustees of the Bridge Charitable Fund.

The Mayor, and President of the Common Council, *ex officio*.

Alderman.

Joshua G. Gooch.

Trustees of the Dowse Institute.

The Mayor, and President of the Common Council, *ex officio*.

William W. Wellington. William A. Bullard.

Frank A. Allen.

Representatives in General Court.

Edwin B. Hale.

James H. Sparrow.

George W. Park.

A. Carter Webber.

Lucius R. Paige.

Joseph J. Kelley.

Police-Court.

Standing Justice.

John S. Ladd.

Special Justices.

Henry W. Muzzey.

Woodward Emery.

Clerk.

Thomas McIntire.

City Solicitor.

John W. Hammond.

City Engineer.

William S. Barbour.

*Commissioner on West Boston, Craigie's, and Prison-Point
Bridges.*

Ezra Parmenter.

Superintendent of Streets.

Sumner P. Shepherd.

Superintendent of Lamps.

Benjamin F. Nourse.

*Board of Engineers.**Chief Engineer.*

Patrick H. Raymond.

Assistant Engineers.

First Assistant	.	.	.	.	Thomas J. Casey.
Second Assistant	.	.	.	.	Richard F. Tobin.
Third Assistant	.	.	.	.	Nathaniel W. Bunker.
Fourth Assistant	.	.	.	.	Charles W. Brackett.

Clerk of the Board.

Nathaniel W. Bunker.

*Police-Department.**Chief of Police.*

Frederick W. Hagar.

Captains of Police.

District I.

Timothy Ames.

District II.

Warner W. Simonds.

District III.

John L. Boynton.

Captain of Night Police.

Mark J. Folsom.

*Sergeants of Police.***District I.**

Thomas D. Cook.
Andrew Sproul.

District II.

George H. Copeland.
William Twist.

District III.

Matthew R. Moore.

William Mullett.

Policemen.

Andrew G. Smith.
George A. Marston.
L. J. Cloyes.
James Miller.
Patrick Doyle.
Leonard Shackford.
Allston E. Frost.
David A. Stevens.
Edward F. Belcher.
Benjamin F. Bridden.
James H. Parks.
George Wood.
Luther Hapgood.
Simon D. Hiscock.
Rufus S. Downe.
Thomas H. Lucy.
George S. Dudley.
Benjamin F. Higgins.
Daniel Callahan.
Dennis Corcoran.
Moses W. Hooper.
John F. Murray.
Amos Jones.
David N. McCleary.

William H. Fitzpatrick.
Frederic B. Pullen.
Albert D. Cleveland.
Henry M. Tyler.
Alonzo S. Harriman.
Thomas W. Penney.
William Evans, jun.
Charles A. Brown.
Hugh McNamee.
Timothy Corcoran.
Charles B. Jones.
James E. Murray.
Thomas S. Hall.
Charles S. Dixon.
William Nickelson.
Lawrence J. Ducey.
Michael A. Dalton.
James S. Dailey.
James S. Alexander.
Frank W. Scobey.
William Hawkins.
Warren A. Eaton.
Otis Dennison.
John W. Skelley.

William F. Batchelder.

Policemen (without pay).

P. H. Raymond.	Daniel R. Melcher.
Thomas J. Casey.	Frank J. Curtis.
Thomas H. Eames.	Benjamin F. Livingston.
John Coffee.	Charles A. Gay.
Joseph A. Pike.	James W. Lovering.
Eben Pratt.	George B. Lothrop.
James F. Dunn.	Richard F. Tobin.
Roland Litchfield.	Joseph Collins.
Charles L. Russell.	Michael Ginty.
G. C. W. Fuller.	Dennis Murphy.
J. L. P. Ackers.	Nathaniel W. Bunker.
James C. Wilder.	Charles W. Ash.
Thomas McIntire.	George D. Eaton, jun.
James K. Farwell.	Thomas Montgomery.
Hiram Nevons.	William Wilson.
James M. Learned.	Ferdinand N. Buffum.
George Smyth.	Maurice Murphy.
Samuel F. Hunt.	Edward H. Howe.
Patrick Dunnigan.	John Fitzgerald.
Augustus W. Melvin.	Samuel S. Morgan.
William H. Grieves.	William Collins.
Joshua S. Sanborn.	John C. Driscoll.
John Ring.	C. McArthur.
James T. Edson.	George T. Barrington.
Daniel Sherman.	Benjamin J. Peirce.
Dennis Murphy.	Bernard J. Roper.
Christopher Mullen.	Patrick Murphy.
Martin V. Langley.	Lewis A. Thurston.
Charles W. Priest.	Michael J. Davren.
Edward Brady.	Patrick Conners.
James F. Dunn.	Francis M. Mason.
Henry L. Hale.	Moses M. Child.
Edward Patchett.	Benjamin McIlvaine.
George W. Tower.	Abel F. Thurston.
William H. Bates.	Frank E. Balch.
Alexander A. Barker.	Josiah C. Smith.
William N. Porter.	R. O'Connell.
George F. Jennings.	John W. Richmond.
John H. Menard.	Appleton Hubbard.

William A. Norris.
 John Loughrey.
 Thomas Cowan.
 Noah M. Cofran.
 Alex. F. Shepherd.
 William Hunnewell.
 William T. Gibson.
 John A. Leighton.
 Francis A. Osborn.
 Lewis Pratt.
 C. W. Brackett.
 W. H. Cox.

Moses Dudley.
 Patrick Corcoran.
 William E. Hough.
 Henry L. Emerson.
 Francis L. Pratt.
 William H. McMenimen.
 Thomas M. Howard.
 Edward M. Williams.
 Thomas J. Sanders.
 Ambrose H. Clark.
 Charles E. Littlefield.
 William Foster.

Edward R. Cogswell.

Keeper of Lock-ups.

Frederick W. Hagar.

Truant-Officers.

Moses M. Child.

John Collier.

Francis M. Mason.

Constables.

Frederick W. Hagar.
 William Twist.
 John L. Boynton.
 John C. Burdakin.
 Thomas McIntire.
 Frederick A. Lull.
 Thomas T. Ferguson.
 Timothy Ames.
 Michael S. Busnach.
 William A. Taylor.
 Charles H. Hunnewell.
 Charles B. Jones.
 Edward R. Cogswell.
 George L. Cade.

Charles J. Adams.
 James F. Jefferds.
 Charles L. Russell.
 James I. Murphy.
 George L. Mitchell.
 John Lennon.
 Thomas J. Stevens.
 John R. Fairbairn.
 Dennis D. McCarthy.
 Mark J. Folsom.
 John Good.
 Frederick H. Seavey.
 William Dallinger.
 Warner W. Simonds.

Superintendent of Burial-Ground.

Ward I.

Benjamin F. Wyeth.

Undertakers.

Benjamin F. Wyeth.
Roland Litchfield.
Samuel F. Hunt.
Thomas Devens.
John W. Coveney.
Judson Litchfield.

James Kernan.
William Casey.
C. Henry Lockhart.
William A. Taylor.
Horace D. Litchfield.
James E. Rourke.

Auctioneers.

Humphrey L. Snow.
Samuel F. Rugg.
Thomas T. Ferguson.
C. F. Boynton.
Aaron Farnham.
Edward Burnham.
Enoch H. Wakefield.
Frederick A. Lull.
Alonzo B. Merrill.
Ira Taylor.
Jason Winnett.
Watson G. Cutter.
Daniel A. Buckley.
John Sargent.
H. A. Brown.

Mark H. Appleby.
Edmund E. Sanborn.
John R. Fairbairn.
Jeremiah W. Coveney.
John Lennon.
Elias Furbush.
Edwin P. Henderson.
John White.
Calvin Ford.
George H. Wells.
Albert O. Delano.
Joseph Heron.
Benjamin King.
Elbridge W. Locke.
Arthur O. Fuller.

William A. Munroe.

Fence-Viewers.

George B. Lothrop.

Abiel Goss.

Abel Stevens.

Field-Drivers.

Thomas D. Cook.	James E. Murray.
Andrew Sproul.	Thomas S. Hall.
Andrew G. Smith.	William Nickelson.
George A. Marston.	Lawrence J. Ducey.
L. J. Cloyes.	Michael A. Dalton.
James Miller.	James S. Dailey.
Leonard Shackford.	James S. Alexander.
Daniel Callahan.	William Mullett.
William H. Fitzpatrick.	Dennis Corcoran.
John LeBarron.	Moses W. Hooper.
Frederic B. Pullen.	John F. Murray.
Albert D. Cleveland.	Matthew R. Moore.
Henry M. Tyler.	Amos Jones.
Alonzo S. Harriman.	David N. McCleary.
Thomas W. Penney.	Warren A. Eaton.
William Evans, jun.	John W. Skelley.
Hugh McNamee.	George H. Copeland.
Benjamin F. Bridden.	William Twist.
James H. Parks.	Charles A. Brown.
George Wood.	Patrick Doyle.
Luther Hapgood.	Charles S. Dixon.
Simon D. Hiscock.	George S. Dudley.
Rufus S. Downe.	Frank W. Scobey.
Thomas H. Lucy.	William H. Batchelder.
Allston E. Frost.	William Hawkins.
David A. Stevens.	Edward F. Belcher.
Charles B. Jones.	Timothy Corcoran.

Measurers of Wood and Bark.

John R. Taylor.	Benjamin J. Hoyt.
William H. Hood.	J. Henry Wyman.
Herbert T. Lawrence.	Frederick H. Lewis.
Thomas H. Matthews.	P. T. Clark.
Nathaniel L. Allen.	

Pound-Keepers.

Elisha S. Woodward. Thomas D. Cook.
 William Twist.

Fish-Officers.

Thomas D. Cook. Walter S. Swan.
 Andrew Sproul.

Hay-Weighers.

Timothy Sullivan. Nathaniel L. Allen.
 John F. Brine.
 Joshua S. Sanborn.

Coal-Weighers.

James F. Jefferds.	J. Henry Wyman.
John F. Brine.	Jones Valentine.
Thomas McIntire.	Alfred H. Wellington.
William A. Hunnewell.	Joshua S. Sanborn.
Thomas H. Matthews.	Frederick H. Lewis.
John E. A. Mulliken.	Herbert T. Lawrence.
Patrick Kelley.	Leonard Bacon.

Weigher of Boilers and Heavy Machinery.

Joshua S. Sanborn.

Sealer of Weights and Measures.

Benjamin F. Nourse.
 Stephen P. Sharples, *Deputy Sealer.*

Weighers.

Joseph W. Averill.	Thomas Ralph.
Patrick Dunnigan.	George W. Wright.
James H. Reardon.	Alvin M. Haines.
Nathan H. Holbrook.	Henry James.
Henry Hooker.	George W. Barnes.
Robert S. Paine.	John Reardon, jun.
Joshua S. Sanborn.	

Inspector of Milk.

Stephen P. Sharples.

Surveyors of Mechanics' Work.

William S. Barbour.	John S. Pollard.
William A. Mason.	Arthur Hodges.

Measurers and Surveyors.

E. F. Young.	Henry L. Hale.
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Inspector of Charcoal Baskets.

Benjamin F. Nourse.

Measurer of Grain.

Benjamin F. Nourse.

Inspectors of Junk-Shops.

Frederick W. Hagar.	Charles B. Jones.
Amos Jones.	Mark T. Folsom.
William F. Batchelder.	

Ward-Officers.

Ward I.

WARDEN.	INSPECTORS.
Edmund Miles.	George Allen.
CLERK.	George T. Barrington.
John Gorman.	James A. Martin.

Ward II.

WARDEN.	INSPECTORS.
James H. Davis.	Frederick W. Holton.
CLERK.	Perry A. Lindsay.
Charles R. Shaw.	Horace G. Kemp.

Ward III.

WARDEN.	INSPECTORS.
Daniel B. Shaughnessey.	James E. Doyle.
CLERK.	William J. Breen.
Silas E. Buck.	William A. Stevens.

Ward IV.

WARDEN.	INSPECTORS.
Isaac S. Pear.	William L. Lathrop.
CLERK.	John Locke.
Joshua S. Sanborn.	John H. Corcoran.

Ward V.

WARDEN.	INSPECTORS.
Charles L. Fuller.	Sylvanus G. Griffin.
CLERK.	Joseph Newman.
George T. Presby.	James Roper.

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